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U.S. BUREAU OF
AMERICAN ETHNOLOGY

TO THE SECRETARY OF THE
SMITHSONIAN INSTITUTION

1919-1924

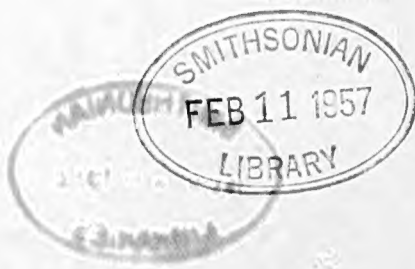


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1928



AMERICAN ETHNOLOGY
BUREAU OF
ANNUAL REPORT OF THE
FORTY-FIRST
TO THE SECRETARY OF THE
SMITHSONIAN INSTITUTION

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LETTER OF TRANSMITTAL

SMITHSONIAN INSTITUTION,
BUREAU OF AMERICAN ETHNOLOGY,
Washington, D. C., July 1, 1924.

SIR: I have the honor to submit herewith the Forty-first Annual Report of the Bureau of American Ethnology, containing the administrative reports of the bureau for the fiscal years ended June 30, 1920, 1921, 1922, 1923, and 1924.

With appreciation of your aid in the work under my charge, I am,

Very respectfully yours,

J. WALTER FEWKES, *Chief.*

Dr. CHARLES D. WALCOTT,

Secretary of the Smithsonian Institution.

NOTE

This volume contains the administrative reports of the Chief of the Bureau to the Secretary of the Smithsonian Institution covering the five-year period from July 1, 1919, to June 30, 1924.

During a long period these reports have fallen behind, through lack of sufficient funds to publish and for other reasons, and it has been decided to print the five reports in this volume in order to give subsequent administrative reports current publication.

This will not change the numerical order of the annual reports.

THE EDITOR.

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ANNUAL REPORT
OF THE
BUREAU OF AMERICAN ETHNOLOGY
FOR THE FISCAL YEAR ENDED JUNE 30, 1920

J. WALTER FEWKES, Chief

SIR: In response to your request I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1920, conducted in accordance with the act of Congress approved July 19, 1919. The act referred to contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including necessary employees and the purchase of necessary books and periodicals, \$42,000.

Ethnology is the study of man in groups or races and aims to contribute to our knowledge of racial culture and advance our appreciation of racial accomplishment. The researches of the Bureau of American Ethnology deal with the aborigines of the United States and the Hawaiian islanders.

The material from which we may secure this knowledge is rapidly disappearing or being absorbed into modern life. The culture of the aboriginal inhabitants has in a great measure vanished, but modern survivals still remain, and it is one object of the bureau to record these survivals while this is possible, thus rescuing what remains as a partial record of the culture of the race. This is essential in order that our knowledge of the North American Indian may neither be distorted by prejudice nor exalted by enthusiastic glorification.

In linguistics the necessity of recording those languages that are in danger of extinction is urgent. Several of these are now spoken only by a few survivors—old men or women—and when they die this knowledge which they possess will disappear forever. Our Indians had a large literature and mythology which on account of their ignorance of letters they did not record. This is rapidly being lost, and it is our duty to secure the information at once before it loses its aboriginal character. The lexical and grammatical structure of the different Indian languages, their phonetic peculiarities, and their relations to each other also require intensive studies, which have been industriously pursued by the linguists of the bureau.

It is believed that the publications of the Bureau of American Ethnology should be of such a nature that they may be studied with profit by all intelligent persons and not so crowded with technicalities as to repel all readers except a few specialists. While the bureau publications should not be devoted solely to popular articles they fail to advance and diffuse ethnological knowledge if they are so technical that they appeal only to one class of readers. The policy of the bureau is to publish a limited number of technical papers, the popular demand also being given due weight.

Important researches have been conducted by members of the staff on the material culture of the Indians, one aim being to ascertain the various fibers and foods used by them with a view to discover hitherto unused aboriginal resources that might be adopted with profit by the white man.

In order that the character of the habitations of the Indian might be better known and an accurate knowledge of them disseminated, illustrations of aboriginal buildings found in early maps and documentary records are being gathered and a series of publications on this subject has been inaugurated. These, when available, are accompanied by the original descriptions of the buildings and incidentally identifications of the sites of the larger villages so far as possible.

The bureau has continued researches on the music of the Indians with good results, as the past publications on this

subject have attracted the attention of musicians who are making practical use of this knowledge in their compositions. There is a great demand for strictly Indian music.

Archeology has been one of the important lines of research by members of the bureau during the past year. Although the methods of research of this science are somewhat different from those of the ethnologist, the goal is the same.

It is urgent to gather all possible data regarding the ethnology of the Indian prior to the advent of the white man, and where written history is silent on this subject, legends, monuments, and other prehistoric remains are the only media to supply the unknown chapters of history. As the national parks, like the Mesa Verde, and national monuments, like the Chaco Canyon, containing the best examples of this evidence, have been reserved for permanent protection, the bureau is engaged in the scientific study of these remains in cooperation with the National Park Service.

The function of the Bureau of American Ethnology is both to advance knowledge of ethnology and archeology by researches and to disseminate information on all subjects concerning Indians. Much of the time of the chief and the members of the staff is occupied in replying to letters requesting this information. This in many cases requires special knowledge of experts or extended studies in the library. The administration and routine duties of the office have also occupied much of the time of the chief.

The Great War has enlarged our view of the practical value of ethnological studies. As our country has become a world power and has entered into political and commercial relationships with many other races whose ethnology is little known, it is desirable that the ethnological researches of the bureau be enlarged in order that we may better appreciate these foreign peoples. From necessity we have limited our researches to the American Indian and the natives of Hawaii. There is, however, an urgent call for more extended studies of all peoples whose amalgamation will constitute the future American.

SYSTEMATIC RESEARCHES

In addition to purely official duties, the chief has devoted considerable time to field work and the preparation of reports on archeological researches. In the course of the year two visits were made to the Mesa Verde National Park, Colorado—one in August and September, 1919; the other in June, 1920. These researches, in accordance with the above-mentioned act of Congress for the excavation and repair of archeological remains, were in continuation of the cooperative work of the Smithsonian Institution and the National Park Service of the Department of the Interior, and were made with an allotment from the latter for the excavation and repair of cliff houses and other ruins on the Mesa Verde.

In the summer and autumn of 1919 the chief excavated and repaired Square Tower House, formerly known as Peabody House, one of the most picturesque cliff dwellings of the park. The excavation of small house sites situated among the cedars on top of the mesa near the trail to Square Tower House was carried on simultaneously by Mr. Ralph Linton, under the direction of the chief.

The work of Square Tower House has enlarged our knowledge of the structure of cliff dwellings; that on small house sites contributes to theoretical discussions of their genesis and evolution. The small house sites on top of the mesa were interpreted as prototypes of kivas in the large cliff buildings and are thought to be the ancient stages in their development. The whole history of the evolution of horizontal masonry can be followed by studies of various types of buildings on the Mesa Verde.

The two unique characteristics of Square Tower House are a square tower situated in the middle of the ruin and the well-preserved roofs with beams intact on two of the ceremonial rooms, or kivas. The repair of the tower was timely, as it had been feared for many years that it would fall, since it has long been tottering. As all friends of our antiquities would regard the destruction of this as a calamity, it was strengthened and put in a condition for permanent preservation.

The roofs of two of the eight kivas in Square Tower House were almost intact and show the best specimens of aboriginal carpentering in the park. Almost all of the original beams are still preserved, and their arrangement shows how the aboriginal builders constructed a vaulted roof. Especial care was exercised in repairing Square Tower House to protect these roofs and preserve the beams in place for examination by archeologists and visitors.

Small house sites are very numerous on top of Mesa Verde among the dense growth of cedars, and two of these situated above Square Tower House were chosen as types of the remainder for excavation. The rooms uncovered on these sites may be called earth lodges, and had sunken floors with roofs now fallen in but originally constructed of logs covered with earth. One of these rooms, called Earth Lodge A, was completely excavated, and in order that the style of the most ancient habitation on the park might be seen by visitors it was protected from the elements by a shed. Another form of earth lodge, subterranean and probably of later construction, had stone pilasters like a cliff-house kiva for the support of a domed roof, but its walls were made of adobe plastered in the earth. It shows three periods of occupancy: (1) The original excavation, a subterranean room constructed on the lines of the unit type of kiva; (2) its secondary use as a grinding pit, by the introduction of vertical slabs of stone making three grinding mills, the metates of which were in place; and (3) a depression filled in with débris containing human skeletons and other bones. It may thus have served distinct purposes at different times.

The theoretical importance of Earth Lodge A is that it represents not only the archaic type of building of the mesa but also resembles those widely distributed habitations of nonpueblo tribes. It points to the conclusion that when the ancient colonists came to the Mesa Verde they differed only slightly from nomadic tribes and that their descendants developed the craft of stonemasons long after Earth Lodge A was inhabited.

Archeological work was renewed on the Mesa Verde in June, 1920, and the work of excavating was begun on a ruin called Painted House and a neighboring cliff dwelling. The result of this work was of great significance, for it brought to light a large cliff building that showed no evidence of having been formerly inhabited. It was not a cliff dwelling, but built for some other purpose. Its character points to the conclusion that this purpose was a temple for the celebration of fire rites, or possibly the conservation of that fire from year to year. While there was found no evidence that anyone ever lived in it, an adjacent cliff dwelling afforded every indication that it was inhabited by at least two clans. New Fire House belongs to the same group of ceremonial buildings as Sun Temple, except that it is situated in a cliff and not on top of the mesa.

The features that have led to the identification of this ruin as one devoted to New Fire rites are the large walled fireplace full of ashes in the middle of the court and the resemblances of phallic and other pictures on the walls of the rooms to those still surviving among the Hopi in the New Fire cult.

Mr. James Mooney, ethnologist, remained in the office throughout the year, engaged chiefly in the elaboration of material relating to the heraldry of the Kiowa and the Peyote cult of the southern plains tribes.

In connection with the preparation of the Denig Assiniboin manuscript for publication, a correspondence was carried on with members of the Denig family and others for the purpose of gathering all available information concerning the history and personality of the author. A valuable complement to the Denig work is the German manuscript journal of the Swiss artist, Friedrich Kurz, who visited the upper Missouri in 1851-52, spending some months with Denig at Fort Union. A copy of the original journal, now in the museum of Bern, was made some years ago by direction of Mr. David I. Bushnell, jr., who sold it to the bureau.

The usual amount of correspondence in answer to requests for varied ethnologic information received attention. Among these may be noted requests from the War Department

for Indian designs for regimental flags for two newly organized regiments.

In the latter part of October and throughout November, 1919, Dr. John R. Swanton, ethnologist, was at Anadarko, Okla., where he recorded about 270 pages of text in the Wichita language and 100 in Kichai, besides considerable vocabulary material in both. It should be remarked that the Kichai language is rapidly becoming extinct, being now spoken fluently by not over a dozen persons.

During the summer preceding this expedition he was engaged in the extraction and card cataloguing of words from his Natchez texts, and after his return he prepared a grammatical sketch of the Natchez language, complete as far as the material on hand will permit, but withheld from publication for a final review with the help of Indian informants. This language is now spoken by only three persons.

He also completed a sketch of the Chitimacha language, the rough draft of which had already been prepared, and began the extraction and recording of words from his texts in the Koasati language.

Part of his time has been occupied in correcting the proofs of his Bulletin 73, on the Early History of the Creek Indians and Their Neighbors.

Several hundred cards have been added to his catalogue of material bearing on the economic basis of American Indian life.

Doctor Swanton completed reading the proofs of Bulletin 68, A Structural and Lexical Comparison of the Tunica, Chitimacha, and Atakapa Languages, and the bulletin was issued in December, 1919.

The sketch of the Chitimacha language mentioned above, along with a similar sketch of Atakapa previously prepared, is ready for publication. Doctor Swanton has a much longer paper on the social organization and social customs of the southeastern Indians which requires a little work for completion, but is withheld until the bulletin, which it naturally follows, is through the press.

Mr. J. N. B. Hewitt, ethnologist, took up the critical analysis and constructive rearrangement of the three differing versions of the Eulogy of the Founders of the League of the Iroquois, obtained by him, respectively, from the late Seneca federal chief, John Arthur Gibson; the late Mr. Joshua Buck, Onondaga shaman, of Onondaga-Tutelo extraction; and chief emeritus Abram Charles, of the Cayuga Tribe—all of Ontario, Canada.

This Eulogy of the Founders is a very long chant and one of marked difficulty to render accurately. In his report for last year it was stated that the long-standing disruption of the several tribes composing the league had led to the breaking up of the parts thereof and loss of traditions concerning the principles and structure of the league; hence there are differing versions of most important rituals. In the tribal organization the federal chiefs were organized into several groups with definite political relationships, which differing relationships implied naturally corresponding differences in duties and obligations for the several persons so politically related.

But since the disruption of the political integrity of the tribes of the league and of the league itself by the events of the war of the American Revolution these relationships have become more or less confused in the minds of the people, and hence the great difficulty in determining from the informants of to-day the correct sequence of the names and the exact political relationships subsisting among the several chiefships. This accounts for the difficulties encountered in editing the three variant versions of the eulogy.

In view of works recently published on the genetic relationship of certain linguistic stocks of California and other North American linguistic stocks, and as a result of a conference of the staff of the bureau early in December on late linguistic work in California Mr. Hewitt critically examined the methods and the evidences for relationship relating to the Yuman, the Serian, the Tequistlatecan, the Waicurán, the Shahaptian, the Lutuamian, and the Wailatpuan, claimed in recent publications by Doctor Radin and Doctor Kroe-

ber. In no instance did he find that these authors had proved their case.

Mr. Hewitt continued the preparation for publication of the second part of Iroquoian Cosmology, Part I having already appeared in the Twenty-first Annual Report of the bureau. He spent considerable time in reading the manuscript dictionary and grammatical sketch of the Chippewa language prepared by Father Chrysostom Verwyst, in order to ascertain its value for publication and to enable him to assist the author in a revision of the work; and prepared much data for use in reply to requests by correspondents, often requiring considerable time and most exacting work.

In June, 1920, Mr. Hewitt visited the Oneida Indians, residing in the vicinity of Seymour and Oneida, Wis.

The purpose of this visit was to ascertain what information, if any, these Indians retained concerning the principles and structure of the League of the Five (later Six) Nations, or even concerning their own social organization, or the mythic and religious beliefs of their ancestors, which has not already been recorded by him, from other sources. He found that these Indians had forgotten the great principles and the essential details of the organic structure of the league, of which the Oneida before their disruption by the events of the war of the American Revolution were so important a member, due to the adoption of lands in severalty about 1887, and the administration of their public affairs under the laws of the State of Wisconsin.

He discovered that these Oneida spoke a dialect markedly different from that of the Oneida with whom he was already acquainted and succeeded in recording a text relating to hunting wild pigeons (now practically extinct) at the time of "roosting."

From the Wisconsin Oneida Mr. Hewitt went directly to the Tonawanda Reservation to consult with Seneca chiefs, after which he proceeded to the Grand River grant of the Six Nations, near Brantford, Ontario, Canada, and there obtained an interesting text in the Onondaga language, with a free English translation. This text embodies an old Tutelo tradition of the manner in which the assistant to the

chief was established, and is reminiscent of the early raids of the warriors of the Five Nations into the southern home of the ancient Tutelo.

Information relating to the internal structure of the tribal organization of the several tribes was carefully revised, especially the place of the several clans with regard to the symbolic council fire, and therefore their membership in either the male or the female side of the tribal organization. Certain sentences placed after every Federal title throughout the Eulogy of the Founders—originally 49 in number—can not be understood without this definite knowledge of internal tribal organization, as there is constant danger of confusing tribal with federal relationships. The internal tribal organization differed among the Five Nations and the knowledge of one or two is not sufficient.

With the aid of Mr. Asa R. Hill as Mohawk interpreter and informant, the work of the textual criticism of the Mohawk text of the league material originally collected by Mr. Seth Newhouse, a Mohawk ex-federal chief, was revised. Knowing that Mr. Newhouse is a fine Mohawk speaker, Mr. Hewitt induced him to translate his material back into the language from which he had rendered it into indifferent English. This translation was not desired for publication, but to obtain the correct Mohawk terminology or diction for the expression of the ideas embodied in the material.

During the year Mr. Francis La Flesche, ethnologist, devoted most of his time to the task of preparing for publication the manuscript of the first volume of his work on the Osage tribe. In February the text of the first volume was finished and the manuscript placed in the hands of the Chief of the Bureau of American Ethnology.

The volume contains two elaborate ancient rituals, the first of which is entitled "Ga-hi'-ge O-k'oⁿ, Ritual of the Chiefs"; and the second "Ni'-ki Noⁿk'oⁿ, Hearing of the Sayings of the Ancient Men." These rituals are rendered in three forms: First, in a free English translation; second, the recited parts, also the words of the songs, as given by the Indians themselves in their own language into the dictaphone; third, a translation from the Osage language into

English as nearly literal as can be made. Owing to the peculiar modes of expression used in the rituals by the Indians, such as metaphors, figures of speech, tropes, and archaic terms, it is impossible to give an absolutely literal translation. Furthermore, much of the language used in these rituals is in ceremonial style and not that in daily use among the people.

On the completion of the manuscript of the first volume, Mr. La Flesche took up the task of preparing for publication the manuscript of the second volume.

Mr. J. P. Harrington, ethnologist, spent the months of July, August, and September, 1919, on field duty in New Mexico in pursuance of his studies of the ethnology and linguistic relationship of the Southwest Indians. These studies resulted in a large amount of most carefully heard textual, grammatical, and lexical material from the Tano-Kiowan family of languages, the elaboration of more than 750 pages of which was completed for publication before the close of the fiscal year.

Important discoveries in connection with this work are that Zuñian is definitely added to the Tano-Kiowan-Keresan-Shoshonean stock; and that the religious ceremonial words of Tanoan are largely borrowed from Zuñian and Keresan. This last discovery has proved one of the most interesting features of the work, for, just as it can be shown that the watermelon and muskmelon, for example, are not native to the Tanoan Indians because designated by Spanish loan words or by mere descriptive terms, so it can be also demonstrated linguistically that the Tanoans have adopted many features of the Zuñian and Keresan religion. Even such fundamental conceptions as Wenima, the abode of the dead, and Sipapu, the entrance to the other world, have been taken over by the Tanoans, e. g., as Tewa Wayima and Sip'o phe.

At the close of September Mr. Harrington returned to Washington and was engaged during the remainder of the year in the elaboration of his material. Mr. Harrington also performed various office duties during this period.

In August, 1919, Dr. Truman Michelson, ethnologist, renewed his researches among the Fox Indians, which con-

sisted exclusively of working out a grammatical analysis of the Indian text of his manuscript on the White Buffalo Dance, in order to make a vocabulary for the same. He returned to Washington near the middle of September, when he resumed his work on the Indian text, as well as the vocabulary. The manuscript was submitted in March, 1920.

During the winter Doctor Michelson worked on the manuscript of the White Buffalo Dance; he also spent some time on a rough translation of an autobiography of a Fox Indian woman written in the current syllabary. This translation was based on a paraphrase in English written by Horace Poweshiek. In the middle of June he left for Tama, Iowa, to restore the syllabary text phonetically, to further work out a grammatical analysis to enable him to add a suitable vocabulary, to elucidate a number of ethnological points, and to correct the translation in a number of places. By the close of the fiscal year he entirely restored the text phonetically.

In addition, Doctor Michelson has furnished data for official correspondence.

SPECIAL RESEARCHES

In addition to the work of members of the staff mentioned in their reports above, the bureau has employed others in ethnological and archeological researches.

Mr. Neil M. Judd, curator of American archeology in the United States National Museum, was detailed in June to complete a report on his work for the bureau in previous seasons in southeastern Utah. At the time of writing no report on this work has been received.

Miss Frances Densmore resumed work on the Pawnee songs on September 1, 1919. Transcriptions and analyses of 58 Pawnee songs have been submitted during the year. These comprise songs of the Morning Star ceremony and of the Buffalo Dance, the Bear Dance, and the Lance Dance. In April, 1920, she visited the Pawnees a second time and was permitted to enter the lodge during the Morning Star ceremony and to see the contents of the "sacred bundle." This bundle is opened once a year. (It is said that only one other

white person has been permitted to enter the ceremonial lodge.) This ceremony afforded an opportunity to hear certain interesting rituals which are sung only at this time.

Three manuscripts on Pawnee music have been submitted during the year. In addition to the ceremonial material above mentioned these papers contain songs of war and of a game, as well as miscellaneous songs and those connected with folk tales. The Pawnees were selected as representative of the Caddoan stock, according to the plan of comparing the songs of the various linguistic stocks.

About the middle of February, 1920, Miss Densmore began a study of the Papago Indians as a representative of the Piman stock. For more than a month she lived at San Xavier Mission, a Government station, among the Papago near Tucson, Ariz., and recorded more than 100 songs, 25 of which have been transcribed, analyzed, and submitted. Three subjects were studied—treatment of the sick, customs of war, and ancient stories. As examples of the psychology revealed by musical investigation it may be noted that the Papago state that all sickness has its origin in the anger of a mythical "creator," and that many of the songs used in treating the sick are said to have been received from spirits of the dead.

Miss Densmore considers the chief points of the year's investigation to be the evident contrast of songs of different linguistic stocks and the increasing evidence that rhythm in Indian song is more varied and important than melody. It is interesting to note that the songs recorded by an individual Indian doctor showed similarity in melodic material and formation, but a wide variety in rhythm. The poetry of the words of Papago songs is of an unusually high order.

In April, 1920, Miss Densmore visited the "Mohave" Apaches living at Camp MacDowell, near Phoenix, Ariz., with a view to recording songs among them next season, taking the Apache as the representatives of the Athapascan stock.

In July, 1919, Miss Densmore visited the Manitou Rapids Reserve in Canada to obtain data on the customs of the Canadian Chippewas for comparison with the tribe in the

States. She found an interesting contrast in bead patterns and collected considerable information on their general culture. August 14 to 30, 1919, she worked on the botanical section of the book on Chippewa Arts and Customs, this section comprising the use of plants as food, medicine, and charms.

Mr. David I. Bushnell, jr., continued the preparation of his manuscript for the Handbook of Aboriginal Remains East of the Rocky Mountains, and in the course of his work has prepared a bulletin entitled "Native Villages and Village Sites East of the Mississippi," which has been published as Bulletin 69. He has also written Bulletin 71, on "Native Cemeteries and Forms of Burial East of the Mississippi," the final proofs of which have been sent to the printer, but the work has not yet been delivered to the bureau. The favorable reception of these bulletins, as indicated by the many applications made at the office for them, is gratifying.

Mr. Bushnell also gathered notes, maps, and photographs to be used in the preparation of two manuscripts for the bureau. One is to have the title, "Villages of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi"; the second, "Burials of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi." The former is nearing completion, and both should be finished during the next fiscal year.

The results of the archeological work in Texas under Prof. J. E. Pearce, for which a special allotment was made, are important. Reconnaissance work has been done in the eastern, middle, and western parts of the State. Indian mounds at Athens, in eastern Texas, have yielded pottery akin in form and technique to that of the Mississippi, suggesting cultural connections which have as yet not been completely traced. In western Texas the group of pictographs at Paint Rock has been given especial attention. They are little known, as they are at present seldom visited by tourists. This series of rock pictures is important enough to be protected by law. The present owner of the ranch upon which they are situated, recognizing their importance, will prevent vandalism.

The work was mainly on the antiquities of central Texas, where intensive work was much to be desired. Professor Pearce, who has charge of this work, believes that the mounds in this part of the State are kitchen middens and that they were connected with the first men who came into this region. He is also of the opinion that the culture which they represent was much cruder than that of the historical Indians; that they knew nothing of polishing stone or of pottery making; and that for thousands of years they were the only occupants of the open prairies and plains of central and west Texas; and finally, that their life was little modified during the entire period of the formation of the mounds. Professor Pearce's report is so promising of results that work in Texas will be continued another year.

Although the aboriginal monuments called mounds and stone graves of the Cumberland Valley have been investigated by several well-known archeologists, it appears from the researches of Mr. W. E. Myer, of Nashville, that much remains to be discovered in this region. Under his guidance the chief visited the aboriginal mounds on the Harpeth River at Oldtown, Castalian Springs, and elsewhere. It was seen that while many of the smaller mounds have been plowed down by the cultivation of the land the larger ones still bear mute evidence of the industry of the builders of these structures and the magnitude of the population.

Mr. Myer has transmitted to the bureau a manuscript on the antiquities of the Cumberland Valley, Tenn., the results of a lifelong devotion to the subject.

Mr. Otto Mallery has presented to the bureau a valuable pueblo collection from the Chama region, New Mexico, made by Mr. J. A. Jeancon, who had charge of the work, and has transmitted a report which is now being prepared for publication.

Mr. Gerard Fowke was given a small allotment for an archeological reconnaissance of the Hawaiian Islands. He began work in May and reports important results which it is too early to detail at this time.

MANUSCRIPTS

The following manuscripts, exclusive of those submitted for publication by members of the staff of the bureau and its collaborators, were purchased:

"Wawenock Texts," by Frank G. Speck.

"History of the Jesuit Mission in Paraguay." The original manuscript, being an English translation by Dr. George Spence, from the original French manuscript of the Abbé Jo. Pedro Gay, Curé de Uruguayana. 2 vols., 4to. Circa 1880. 275 pp.

"A New Guarani Grammar," the original manuscript complete, being a translation into English by Dr. George Spence from the French manuscript of l'Abbé Jo. Pedro Gay, Curé de Uruguayana, 2 vols., 4to.

"Manuel de Conversation en Français, en Portugues, en Español, en Guarany Abañeeme par le Chanoine J. P. Gay, Curé de Uruguayana," arranged in four columns.

"Nouvelle Grammaire de la Langue Guarany et Tupy, etc., par le Chanoine J. P. Gay, Curé," etc., 188 p., folio.

"Mappa geographico da republica do Paraguay pelo conego Joao Pedro Gay, pelo engenheiro Falix Alx. Grivot. 1881."

A copy of "Manuel de Conversation en Français, en Portugues, en Anglaise, en Español, en Guarany Abañeeme." Arranged in five columns. No date.

In addition to those purchased Mr. Edward M. Brigham has submitted for publication a valuable manuscript with many plates on "The Antiquities of the Marajo," Brazil; and Mr. W. E. Myer, of Nashville, Tenn., a manuscript on "The Antiquities of the Cumberland Valley of Tennessee." "A Chippewa Bible History in manuscript in four volumes. 8vo. A. D. 1896-1901," was presented by Fr. Chrysostom Verwyst, O. F. M.

EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, editor, assisted by Mrs. Frances S. Nichols. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED

Thirty-third Annual Report. Accompanying papers: (1) Uses of Plants by the Indians of the Missouri River Region (Gilmore); (2) Preliminary Account of the Antiquities of the Region between the Mancos and La Plata Rivers in Southwestern Colorado (Morris); (3) Designs on Prehistoric Hopi Pottery (Fewkes); (4) The Hawaiian Romance of Laie-i-ka-wai (Beckwith). 677 pp. 95 pls.

Three separates from the Thirty-third Annual Report.

Bulletin 60. Handbook of Aboriginal American Antiquities (Holmes). 380 pp.

Bulletin 68. Structural and Lexical Comparison of the Tunica, Chitimacha, and Atakapa Languages (Swanton). 56 pp.

Bulletin 69. Native Villages and Village Sites East of the Mississippi (Bushnell). 111 pp. 17 pl.

Bulletin 70. Prehistoric Villages, Castles, and Towers (Fewkes). 79 pp. 33 pl.

PUBLICATIONS IN PRESS OR IN PREPARATION

Thirty-fourth Annual Report. Accompanying paper: A Prehistoric Island Culture Area of America (Fewkes).

Thirty-fifth Annual Report. Accompanying paper: Ethnology of the Kwakiutl (Boas).

Thirty-sixth Annual Report. Accompanying paper: The Osage Tribe (La Flesche).

Thirty-seventh Annual Report. Accompanying paper: The Winnebago Tribe (Radin).

Thirty-eighth Annual Report. An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Bulletin 67. Alsea Texts and Myths (Frachtenberg).

Bulletin 71. Native Cemeteries and Forms of Burial East of the Mississippi (Bushnell).

Bulletin 72. The Owl Sacred Pack of the Fox Indians (Michelson).

Bulletin 73. Early History of the Creek Indians and their Neighbors (Swanton).

Bulletin 74. Excavations at Santiago, Ahuizotla, D. F., Mexico (Tozzer).

Bulletin 75. Northern Ute Music (Densmore).

Bulletin 76. Archeological Investigations in the Ozark Region of Central Missouri (Fowke).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 80. Mandan and Hidatsa Music (Densmore).

DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

Annual reports and separates.....	3, 373
Bulletins and separates.....	12, 886
Contributions to North American ethnology.....	32
Miscellaneous publications.....	572
Total.....	16, 863

As compared with the fiscal year 1919, there was an increase of 5,380 publications distributed. Fourteen addresses have been added to the mailing list during the year and 28 dropped, making a net decrease of 14.

ILLUSTRATIONS

Mr. De Lancey Gill, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

Photographic prints for distribution and office use.....	500
Negatives of ethnologic and archeologic subjects.....	300
Negative films developed from field exposures.....	100
Photostat prints made from books and manuscript.....	250

ILLUSTRATIONS PREPARED AND SUBMITTED FOR PUBLICATION

Photographs retouched and otherwise.....	350
Line and color drawings.....	215
Illustration proof edited.....	1, 400
Lithographic proofs examined at Government Printing Office..	5, 200

LIBRARY

The reference library continued in the immediate care of Miss Ella Leary, librarian, assisted by Mr. Charles B. Newman.

During the year 820 books were accessioned, of which 140 were acquired by purchase and 680 by gift and exchange. Volumes made by binding serials are included in these figures. The periodicals currently received number about 800, of which 35 were obtained by purchase, the remainder

being received through exchange. The library has also received 260 pamphlets. The catalogue of the bureau now records 23,380 volumes; there are about 14,508 pamphlets and several thousand unbound periodicals.

Successful effort has been made to complete the sets of certain publications of scientific societies and other learned institutions. For the use of the members of the staff there has been prepared and posted copies of a monthly bulletin of the principal accessions of the library; also information has been furnished and bibliographic notes compiled for the use of correspondents.

During the year the work of cataloguing has been carried on as new accessions were acquired and good progress was made in cataloguing ethnologic and related articles in the earlier serials.

Attention has been given to the preparation of volumes for binding, with the result that 502 books were sent to the bindery. The number of books borrowed from the Library of Congress for the use of the staff of the bureau in prosecuting their researches was about 400.

A pressing problem is the congestion of books on the shelves. For some time the library has been overcrowded and we are now taxed to find room for the current accessions.

The library is constantly referred to by students not connected with the bureau, as well as by various officials of the Government service.

COLLECTIONS

The following collections acquired by members of the staff of the bureau, or by those detailed in connection with its researches, have been transferred to the United States National Museum:

Archeological objects collected in Cottonwood Canyon, Kane County, Utah, by Mr. Neil M. Judd, during the spring of 1919. Accession 63841, 257 specimens.

Archeological objects (748) and skeletal remains (24) collected for the bureau by Mr. Gerard Fowke, from Miller's

Cave, Missouri, during the spring of 1919. Accession 64150, 772 specimens.

Archeological collection, including human bones, from Sell's and Bell's Caves, Pulaski County, Mo., forwarded by Mr. Gerard Fowke. Accession 64198, 83 specimens.

Archeological material from Texas, gathered from the surface by Dr. J. W. Fewkes and Prof. J. E. Pearce in the autumn of 1919. Accession 64248, 165 specimens.

Sculptured stones of Huastec culture, presented to the bureau by Mr. John M. Muir, of Tampico, Mexico. Accession 64249, 5 specimens.

Three fine hardwood bows and three ceremonial clubs from British Guiana, and a blanket of the Cowichan Indians (Salish), Northwest Coast. Accession 64327, 7 specimens.

Collection of archeological objects (262) and skeletal material (16 specimens), together with ethnologica of the Apache Indians (4 specimens), obtained in Arizona by Dr. Walter Hough during the spring of 1919. Accession 64603, 282 specimens.

Collection of archeological objects (212) and two human skulls, gathered by Dr. J. Walter Fewkes, at Square Tower House and contiguous ruins on the Mesa Verde National Park, Colo., in cooperation with the National Park Service of the Interior Department in 1919. Accession 64646, 214 specimens.

Archeological objects (446) and skeletal material (5) collected by Mr. J. A. Jeancon in an ancient ruin near Abiquiu, N. Mex., for Mr. Otto T. Mallery during the summer of 1919, and presented to the Bureau by Mr. Mallery. Accession 64885, 451 specimens.

PROPERTY

Furniture and office equipment was purchased to the amount of \$162.73.

MISCELLANEOUS

Personnel.—The position of honorary philologist, held for several years by Dr. Franz Boas, has been abolished.

Clerical.—The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Mrs. Frances S. Nichols assisted the editor.

There has been no change in the scientific or clerical force.
Respectfully submitted.

J. WALTER FEWKES,

Chief, Bureau of American Ethnology.

Dr. CHARLES D. WALCOTT,

Secretary, Smithsonian Institution.

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ANNUAL REPORT
OF THE
BUREAU OF AMERICAN ETHNOLOGY
FOR THE FISCAL YEAR ENDED JUNE 30, 1921

J. WALTER FEWKES, Chief

SIR: In response to your request, I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1921, conducted in accordance with the act of Congress approved June 5, 1920. The act referred to contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including necessary employees and the purchase of necessary books and periodicals, \$44,000.

In the expenditure of this money the chief has tried to cover the field as economically as possible and to broaden the researches of the bureau staff in order to include as many stocks of Indians as the limited appropriation will allow. The science of ethnology is so comprehensive and its problems so numerous and intricate that to do this scientifically is extremely difficult. Work has been done on the Algonquian, Iroquois, various members of the Muskogean stock, Kiowa, Pueblo, Osage, Pawnee, and others. The plan of work embraces many different aspects of the cultural life of the Indians, including their languages, social and religious customs, music, mythology, and ritual.

Researches have been made on the condition of the Indians in their aboriginal state before or directly after the advent of the Europeans, and the desire has been to increase the relative amount of field work. Archeological

explorations have been prosecuted in Texas, Missouri, Tennessee, Kentucky, Colorado, New Mexico, and the Hawaiian Islands. This line of study is destined to become the most popular in anthropology, and publications on the subject are always eagerly sought by the correspondents of the bureau.

To the development in recent years of the movement known as "see America first" we owe in part the creation of a bureau of the Department of the Interior called the National Park Service. Incidentally the movement has stimulated a desire for research in both ethnology and archeology. Several monuments and one national park have been set aside by presidential proclamation to preserve Indian relics which they contain. The main attractions of most of these reserves are ancient buildings more or less dilapidated and buried underground, and to increase their educational value it is necessary that they be excavated under the supervision of men trained in the scientific methods of the archeologist. They should also be repaired by equally competent hands. This work is now being shared with other institutions, but it is desirable that the Bureau of American Ethnology should continue to occupy a very prominent place in this work, in which it was the pioneer, as its appropriation was made in part for this service.

While the majority of these monuments are prehistoric cliff dwellings or pueblos situated in our Southwest, there are others of equal interest in other parts of the country. For instance, among the most instructive of these monuments is the Kasaan Monument, an abandoned Haida village situated in Alaska. This village has many of the old totem poles, several "grave houses," and other buildings still standing, but rapidly going to ruin, liable to be destroyed by fire or by vandals. It is very desirable that steps should be taken to preserve this deserted town and that ethnological studies be made before these relics are lost to science. The bureau is also contributing its part, in an unobtrusive manner, in the efforts to preserve Cahokia, the largest aboriginal mound in North America.

In his previous reports the chief has annually called attention to the time consumed by the staff in answering correspondence asking information regarding American ethnology and related subjects. Some of these letters request elementary knowledge, others demand more or less research. Whether for the one or the other purpose, they often necessitate investigation and absorb considerable time, which tends to distract the attention of the experts from intensive scientific research, thus causing the scientific output to be reduced to a greater or less degree. Nevertheless the chief regards this aspect of the work of the bureau as a very important one and indicative of the respect in which the bureau is held by its correspondents. For this reason replies have been prepared with great care, so that they may be reliable and authoritative.

FIELD RESEARCHES OF THE STAFF

Two members of the staff, the chief and Dr. Truman Michelson, engaged in field exploration at some time during the year.

During the past year the chief made three visits to the Mesa Verde National Park, Colo.; one in July and August and another in November, 1920. On the second visit he was the guest of Mr. Stephen T. Mather, Director of the National Park Service, Mr. F. A. Wadleigh, general passenger agent of the Denver & Rio Grande Railroad, and other gentlemen. The object of this visit was an inspection of past work in the park and formulation of plans for the future. The work in July and August was a continuation of cooperative work of the Bureau of American Ethnology and the National Park Service, with an allotment by the latter for the excavation and repair of the ruins in the park. A third visit was made in May and June, 1921, at the expense of the bureau.

In the report for 1920 attention was called to the beginning of the work of excavating a ruin known as Painted House, which is situated near the head of Fewkes Canyon, 2½ miles south of Spruce Tree Camp. The result of this work, which was not finished at the close of last year, intensified the

suspicion that this large cliff building was used for some communal purpose, and that it was connected with the worship of fire. The further excavation of this ruin was continued in July, when the floor of a great court was laid bare, verifying this suspicion and giving undoubted evidence of the existence of a large fireplace in the middle of the court. Taken in connection with other evidence, the statement that this was a building devoted to fire worship is practically proven. Fire Temple, as it may be designated, was completely excavated and its walls repaired. Ladders were so placed as to make it accessible to the public.

To facilitate the opening of Fire Temple to visitors, a road was constructed along the southern rim of Fewkes Canyon, ending in what is now called Sun Point, from which a magnificent view can be obtained of Sun Temple, Cliff Palace, and other important ruins of the mesa. The importance of this road is reflected by its popularity; it is now the most frequented road in the park. Its construction also opened to visitors two little-known ruins near Fire Temple, one of which has been known for several years as Oak-tree House and the other as Fire Temple House. The walls of the latter were deeply buried but were completely excavated, bringing to light a most interesting cliff dwelling with kivas in a lower and storage rooms in an upper cave. A number of large ollas and a few unique specimens of black and white pottery and other artifacts were found in this ruin. The indications are that this was the dwelling and granary of the New Fire clan or of the priests who controlled the ceremonies in the Fire Temple. The ventilator of one kiva of this cliff dwelling resembled those of Sun Temple.

Oak-tree House lies in a symmetrical cave in full sight of Sun Point Road, about midway between Fire Temple and Sun Temple. The excavation of this ruin, which has unique features, was completed in September, and it is now in condition for inspection by visitors. A trail was constructed along the top of the talus connecting the ruins in Fewkes Canyon and ladders placed on the rim of the canyon, making access to the ruins easy. These ladders follow the Indian

trails, formed of foot holes cut in the perpendicular walls of the cliff.

One of the most interesting results of work in July, 1920, was the excavation of a tower situated in the cedars about a mile north of Spruce-tree Camp and described in 1892 by Baron G. Nordenskiöld. This tower, which will in the future be called Cedar-tree Tower, enlarges our knowledge of the use of towers, as it is a type of a large number of these structures found on the Mesa Verde and in McElmo and Yellow-jacket Canyons. The special feature of this type before excavation is indicated by a saucer-like depression on the surface of the ground south of the walls above ground. The significance of this depression was unknown previously to the work here mentioned. It marks the existence of a circular subterranean kiva which once had a vaulted roof, and pilasters like those repeatedly described in cliff-house kivas. This tower was completely repaired and a road built around it to make it accessible to tourists.

In his field work at Mesa Verde 30 years ago Baron Nordenskiöld, whose *Cliff Dwellers of the Mesa Verde* has become a classic, partially excavated a ruin in Soda Canyon about half a mile north of Cedar-tree Tower. The approach to this cliff dwelling was very difficult, but has been much improved by a trail constructed under the direction of the chief, making this ruin readily accessible, aided by several ladders where necessary.

The attractive feature of this ruin is a kiva, the inner wall of which still retains on its plastering decorations almost as brilliant as when they were first made. On this account "Ruin 9," as it was formerly called, will be referred to in the future as Painted Kiva House. The decoration consists of a red dado below and white above, with triangles in clusters of three at intervals on the upper border of the dado. These decorations are identical with those on the court and rooms of Fire Temple, and those used by the Hopi in decorating their walls 30 years ago. The row of dots which accompanies this mural decoration is also a common feature on the archaic black and white pottery from Step House, one of the most ancient cliff dwellings on the park.

Many specimens were found in Painted Kiva House, among which may be mentioned pottery, stone implements, metates, axes and celts, bone needles, fabrics, sandals, and problematic wooden objects. Several ears of corn with kernels intact, seeds of squash and pumpkin, and abundant cornstalks and shucks left no doubt of the food of the inhabitants. A fragment of the so-called paper bread called by the Hopi *piki*, possibly over 500 years old, found at the bottom of an Oak-tree House kiva, allays any doubt on this point.

Future field work on the Mesa Verde ought to be especially directed to the study of the relation of the Earth Lodge culture and that of the pueblo, in which is included the cliff dwellings and pueblos on top of the mesa. Both are characterized by distinctive pottery as well as architecture, although the essential features of the former are not very well known. Aztec and the Chaco ruins have local differences from the Mesa Verde, but it is not known which area first lost its population. Both populations flourished at about the same time, and it is believed the cliff dwellings on the Mesa Verde were older than the community houses of the Chaco Canyon.

In May, 1921, the chief resumed his work on the Mesa Verde, remaining there until the close of the fiscal year. During this time he completed the excavation of Far View House, and protected with a cement groat the tops of about two-thirds of all the walls of rooms.

About 385 feet north of Far View House, on higher land, in about the center of the cluster of 16 mounds that are included in the Mummy Lake group, the excavation of a most interesting building wholly buried under fallen walls was begun. Enough work was done to show that it is a remarkable type of building, consisting of a central circular tower with several subterranean rooms or kivas on the south side, overlooking a large cemetery. It has all the appearance of a necropolis of the cluster, and important results await its final excavation. Unfortunately work on this mound had to be suspended at the close of the fiscal year.

The Mummy Lake cluster of mounds is a typical village and is duplicated again and again on the mesa and the surrounding valleys. The complete village consists of buildings of several forms and functions, isolated or united, although the components are largely habitations of the unit type. Evidently the tower, with its accompanying kivas and cemetery, was the necropolis but not a habitation. The spade alone can divine the true meaning of members of this group.

In May the tops of all the walls of Sun Temple were re-cemented with groat to protect the walls from snow and rain, a work of no small magnitude.

During the entire year Mr. James Mooney, ethnologist, remained in the office, engaged in formulating replies to ethnologic inquiries and in digesting material from former western field seasons. No new material was collected or completed. His work during the winter was interrupted by a period of serious illness.

During the last fiscal year Dr. John R. Swanton, ethnologist, practically completed the proof reading of Bulletin 73, *Early History of the Creek Indians and Their Neighbors*, which is now going through the press. He also copied the Koasati texts which were collected a few years ago, and completed the extraction of words from these texts, of which a beginning was made last year.

Doctor Swanton has added a few hundred cards to his material bearing on the economic basis of American Indian life, and has gone over Mr. James Murie's paper on the Ceremonies of the Pawnee twice, in order to make certain necessary changes in the phonetic symbols employed. He has also devoted some time to studies of the Alabama, Hitchiti, and Muskogee languages.

Doctor Swanton also continued the preparation of a paper on the Social Organization and Social Customs of the Indians of the Creek Confederacy, covering over 700 manuscript pages.

During the entire fiscal year Mr. J. N. B. Hewitt, ethnologist, was engaged in office work. His first work was devoted to the completion of the preparation by retyping of the Onondaga texts of the second part of the Iroquoian Cos-

mology, the first part having appeared in the Twenty-first Annual Report of the bureau. Not only is the orthography of a large number of the native terms being standardized to conform in spelling with the other Iroquoian texts recorded by Mr. Hewitt but the statements and phrasing of numerous passages are also amplified or amended in such manner as to utilize information obtained by Mr. Hewitt since the recording of the original texts.

Mr. Hewitt also took advantage of the opportunity presented by the presence in Washington of Mr. George Gaboosa, a mixed-blood Chippewa Indian of Garden River, Ontario, Canada, who speaks both Chippewa and Ottawa dialects of Algonquian, by securing his aid in revising and translating a number of Ottawa texts supplied in 1900 by John Miscogeeon, an Ottawa mixed blood, then in Washington, D. C. These texts are either myths or traditions embodying myths. Mr. Gaboosa supplied the Chippewa versions of these stories. In addition to this work he supplied interlinear translations to all the texts. The following is a list of these texts: The Myth of Nanabozho's Mother; Living Men Visit the Sky-Land; The Myth of Summer and Winter; The Myth of Daylight-Maker, or Daymaker; The Myth of Nanabozho.

Mr. Hewitt is at work on some material relating to the general culture of the Muskogean peoples, especially that relating to the Creeks and the Choctaw. In 1881-82 Maj. J. W. Powell began to collect and record this matter at first-hand from Mr. L. C. Perryman and Gen. Pleasant Porter, both well versed in the native customs, beliefs, culture, and social organization of their peoples. Mr. Hewitt assisted in this compilation and recording. In this way he became familiar with this material, which was laid aside for lack of careful revision, and a portion of which has been lost; but as there is still much that is valuable and not available in print it was deemed wise to prepare the matter for publication, especially in view of the fact that the objective activities treated in these records no longer form a part of the life of the Muskogean peoples, and so can not be obtained at first hand.

In addition to this material, it is designed to add as supplementary matter some Creek tales and mythic legends collected by Mr. Jeremiah Curtin.

The following brief list of topics treated may give some idea of the nature of these field notes: "Towns and clan lists," "Crime and murder," "The government of the clan," "The town government or organization of a town," "The council square," "The chief," "The system of councils," "The clan," "The ranks and the title of persons," "The busk or puskita," "Medicine practices," "Names and naming," "Festivals," "Marriage customs," "Insanity," "Prophecies," "Souls or spirits," "Mythic notes," and the short list of tales collected by Mr. Curtin. Much of the material here recorded is not available either in any other manuscript or in print.

Mr. Francis La Flesche, ethnologist, devoted nearly all of his time to putting into book form his notes for the second volume of his work on the Osage tribe. This task was twice interrupted by the reading of the galley and the page proofs of the first volume.

The second volume is nearing completion and embraces two versions of an ancient rite entitled "No^{n'}-zhiⁿ-zhoⁿ Wa-thoⁿ, Songs of the Rite of Vigil." Up to this date the completed part of this manuscript, exclusive of the illustrations, contains 582 typewritten pages.

Sho^{n'}-ge-moⁿ-iⁿ, who gave the No^{n'}-zhiⁿ-zhoⁿ ritual of his gens, the Tsi'-zhu Wa-shta-ge, died in the autumn of 1919. He was the fourth to die of the old men who aided in the recording of the ancient tribal rites of the Osage. Two old men died before the time set by them to give the ceremonials of their gentes arrived. Sho^{n'}-ge-moⁿ-iⁿ remarked, as he was recording the child-naming ritual, to be published in a later volume, "The Osage people are fast dying out since they abandoned the supplicatory rites formulated by their ancestors."

The beginning of the fiscal year found Mr. J. P. Harrington, ethnologist, engaged in the preparation of his material on the language of the Kiowa Indians. The entire material

was copied, collated, and analyzed, and constitutes a manuscript of more than 1,000 pages.

Kiowa is a typical Tano-Kiowan dialect, closely related in phonetics, vocabulary, and structure with the Tanoan languages of New Mexico. This proves again, as in the case of the Hopi, that culture areas cut across linguistic ones. The Tano-Kiowan is furthermore genetically related to the Keresan and Zuñian groups of New Mexico, also to the Shoshonean, and certain languages of California. Mr. Harrington has in hand a comparative study of these languages which is very bulky.

Upon finishing the manuscript of the Kiowa paper, Mr. Harrington took up the Taos material, aided by a set of excellent texts dictated by Mr. R. Vargas, and comprising 400 typewritten pages. He finished this for publication before the close of the fiscal year.

On July 1, 1920, Dr. Truman Michelson, ethnologist, was at Tama, Iowa, engaged in researches among the Sauk and Fox of that State and preparing for publication by the bureau a manuscript entitled "The Autobiography of a Fox Indian Woman," as far as practical in the field. A good deal of the work on this had been done in the previous fiscal year. Near the close of July he left for Saskatchewan, Canada, where he made a reconnaissance of the Plains Cree at File Hills Agency. From this study it appears that physically the Plains Cree have a cephalic index of about 79, thus belonging to the so-called Mississippi Valley type of North American Indian, which confirms the results of Dr. Boas's work many years ago. Linguistically Cree clearly belongs to the central division of Algonquian languages, but it is not as archaic as has usually been believed. The folklore and mythology here show from an analysis of the culture cycle that both woodland and plains elements are to be found, as well as a few plateau elements. Ethnologically we have the same combination, save that plateau elements are lacking.

Doctor Michelson returned to Washington at the close of August, where he completed the autobiography mentioned above, and in January submitted the manuscript for publication by the bureau. The remainder of his time at Wash-

ington was spent working out English translations of various Fox texts written in the current syllabary on mortuary customs and observances, as well as one or two folk tales.

Doctor Michelson left Washington in the latter part of May, 1921, to renew his researches among the Sauk and Fox of Iowa. Arriving at Tama near the end of the month, Doctor Michelson spent nearly all his time on Fox mortuary customs and observances, mentioned above, with a view to their publication by the bureau. The Indian texts were restored phonetically, the translations corrected where needed, a grammatical analysis begun, and additional data secured, so that with the close of the fiscal year only about two weeks more of field work was necessary to complete the preparation of the volume so far as practical in the field. He took advantage of a favorable opportunity just before the end of the year to obtain data on the society called "Ki wa ka mo A ki."

While in the field and also in the office Doctor Michelson corrected proofs of Bulletin 72, *The Owl Sacred Pack of the Fox Indians*.

SPECIAL RESEARCHES

Special researches in the field were conducted by Miss Frances Densmore, Mr. W. E. Myer, Prof. J. E. Pearce, Mr. Gerard Fowke, and Mr. J. A. Jeancon.

Four manuscripts have been submitted by Miss Frances Densmore during the year, entitled "Papago Songs," "Legend Music of the Papago," "Songs Connected With Expeditions to Obtain Salt," and "Viikita and Wakita Ceremonies of the Papago." This material comprises 148 pages of text, 75 transcriptions of songs (with phonographic records and technical analyses), and 27 photographic illustrations.

In September Miss Densmore resumed her work on Papago music, and in December, 1920, returned to the Papago Reservation in Arizona, where she had worked a few months previously. She revisited San Xavier, but her work centered at Sells, formerly called Indian Oasis, but now the location of the Papago agency. Trips were made from there to Santa Rosa village, in the extreme north, and to Vomari

village in the extreme south of the reservation. Photographs, specimens, and records of songs were obtained at these places.

The principal subject of study at this time was the belief of the Papago in supernatural agencies controlling their food supply. Information was obtained regarding two ceremonies connected with this belief, i. e., the making and drinking of "cactus wine," and the Viikita. Numerous songs connected with these ceremonies were recorded.

Other classes of songs not previously recorded among the Papago were those received in dreams, those sung on expeditions to obtain salt, and those connected with stories told to children; also songs for success in the kicking-ball race and in hunting. Songs of war and of medicine were recorded, as well as others concerning the deeds of Elder Brother and including songs he was said to have sung after creating the spirits, winds, and clouds. Mention may be made of a song that was said to have been sung in order to produce the death of an aged woman. It was said that "her grandsons decided to kill her by means of a song," as her advanced age made her an encumbrance to them. Many songs have been recorded whose purpose was to procure health, but this is the first instance of a song intended to cause death. An important phase of the musical work was the hearing of a certain class of very old dance songs, a portion of which was in three parts, i. e., the voices of the men, the voices of the women singing the same melody an octave higher, and the voices of two or three women singing (for a brief period) a still higher part, different from the melody. This song was accompanied by the shaking of a gourd rattle and the striking of a basket drum, also by stamping the feet, which is the most primitive manner of marking time. This dance is seldom held at the present time, but was witnessed on the desert late Christmas night.

As a development of the year's work Miss Densmore notes the importance of recognizing estheticism as a factor in Indian music. Her analyses have shown the presence of tones whose interval distances correspond to those of the first, second, third, and fourth upper partial tones of a funda-

mental. Thus, in a portion of his melody, the Indian appears to find satisfaction in intervals which are under natural laws. Apart from these tones and intervals it appears, from the evidence in hand, that his choice of tonal material is controlled by a sense of pleasure rather than by "keys" or "modes."

Miss Densmore continued work on her manuscript entitled "Chippewa Arts and Customs." Tabulations of the botanical portions of this book were made as follows: Lists of botanical names, with bibliography, showing the uses of these plants by other tribes; lists of plants used as food, dyes, charms, and for general utility. Miss Densmore made more than 100 blue prints of birch-bark transparencies, showing a wide variety of interesting patterns. These transparencies are made by folding thin birch bark and indenting it with the teeth, the bark, when unfolded and held toward the light, revealing the pattern. This form of Chippewa art is almost extinct at the present time.

In September and October Mr. W. E. Myer, of Nashville, Tenn., excavated, under the auspices of the bureau, Indian village sites on the Gordon farm near Brentwood, Davidson County, Tenn., and also the Fewkes Group at Boiling Spring Academy, Williamson County, in the same State. The remains of an old Indian town at the Gordon site had walls and towers very similar to those of Pacaha, visited by De Soto in 1541. The walls covered an area of 11.2 acres.

When the former inhabitants for some unknown reason abandoned this site they appear to have left nearly all the buildings still standing. The locality was never again occupied or disturbed, but gradually the buildings of the silent and deserted town decayed and whatever vestiges were not destroyed by the elements were slowly buried under a layer of black loam which is now from 14 to 20 inches deep.

In the course of time the site of the buried village gradually became a beautiful grassy glade set here and there with giant forest trees. The charm of the site appealed to one of the first white settlers, who built his home here and pre-

served the grassy glade for a lawn. No one suspected that an ancient Indian town was lying buried a few inches beneath the surface; but on the surface of this undisturbed lawn there were very faint saucer-shaped depressions and other evidences marking the sites of about 125 dwellings.

When the accumulated superficial black loam was removed from some of these circular depressions floors made of hard packed clay were brought to light. Some of these floors were very pleasing to the eye, being covered with a smoothed and polished coating of fine black, glossy material. The stone slab tops of the coffins of little children were exposed here and there projecting an inch or two above the level of the floor.

A building was uncovered in the center of which was an altar filled with the pure white ashes of the ancient perpetual fire. The neighboring buildings were dwellings with fire beds used for domestic cooking. Stone metates, mullers, and other utensils used for household purposes were likewise found on the floors of these rooms.

Mr. Myer also explored an unnamed group of five mounds and a surrounding village site at Boiling Spring Academy in Williamson County, Tenn. At the request of many citizens of Tennessee he gave this the name of Fewkes Group in honor of Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, who had visited the site, recognized its importance, and caused it to be explored.

Archeological field work was carried on by Prof. J. E. Pearce, of the University of Texas, in cooperation with the bureau. The area examined is situated in the vicinity of the city of Athens, in Henderson County, and during this work Professor Pearce received many courtesies from Judge A. B. Watkins, who has long manifested an interest in the archeology of the region. Professor Pearce finds that the eastern Texas region contains numerous mounds, village sites, and burial places, the objects from which are quite different from those found in the central and western portions of Texas. Three interesting mounds on the Morrall farm, 4 miles east of Cherokee County, were investigated. The highest of these mounds measures 80 feet across the base

and 45 feet above the level of the base. The second mound is 180 feet long by 75 feet wide, but is only 15 feet high. Most of the mounds in the neighborhood of Athens have been plowed over and have no regularity in form. Several mounds situated in Harrison County, particularly those on the farm of Mr. Lane Mitchell, of Marshall, were examined and remains of earth lodges discovered, in the floor of which are central fire pits. These are probably recent. Numerous other sites were explored, yielding collections of pottery, stone implements, and other objects illustrating the life of the prehistoric aborigines of eastern Texas. Everything found implies that the Indians of this region lived in settled villages, were agriculturists, and made pottery of a high grade of excellence. Their culture was higher than that of the Indians who occupied the central region of Texas, investigated in 1919.

With a small allotment, Mr. J. A. Jeancon carried on important archeological work on a ruin at Llano, near Rancho de Taos, N. Mex., and obtained a valuable collection from a locality not represented in the Museum.

The architectural features and relations of the kiva and secular rooms of this ruin recall those of the cliff dwellings and pueblos of the Mesa Verde. The circular subterranean kiva that was excavated proved to be almost identical with a typical Mesa Verde kiva, verifying the legends that the modern Taos Indians are a mixed type containing Pueblo elements, probably of northern origin.

This kiva was embedded in house walls not free from secular buildings as in modern Taos and showed evidences of two occupations, or one kiva built inside another. It had no pilasters for the support of a vaulted roof, but there were in the floor four upright posts upon which a flat roof formerly rested. In the floor was an excellent fireplace and a plastered pit the purpose of which is problematical.

Mr. Jeancon's work attracted wide attention, and many persons visited the site while he was at work. Members of the chamber of commerce in Taos declared their intention to protect the excavated walls by means of a shed.

The chief visited the ruin before excavation began and inspected the excavations after they had been completed.

Mr. Gerard Fowke represented the bureau at the meeting of the Pan Pacific Congress in Honolulu and made a special study of the archeology of the Hawaiian Islands. He found that all the aboriginal remains on the islands are the work of the present Hawaiian race, indicating that when the earliest of these people came there the islands were without inhabitants. No archeological evidences were found of any prehistoric population; and, so far as can be ascertained, excavations would not result in the discovery of any specimens essentially different from those that can be seen on the surface or may be found slightly covered by very recent natural accumulation. At the same time, as all the remains are well worthy of study and preservation, the islands furnish opportunity for further research. His report on the temples, terraces, and other remains has been received and awaits publication.

Dr. Clark Wissler has given what time he could spare from his duties as chairman of the division of anthropology and psychology of the National Research Council to the completion of a Pawnee manuscript, in which he has been aided by Mr. James R. Murie. The music necessary for this has been transcribed by Miss Helen H. Roberts, and Dr. John R. Swanton has also assisted in this work.

During the fiscal year Mr. D. I. Bushnell, jr., completed a manuscript bearing the title: "Villages of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi." While engaged in the preparation of this manuscript he also secured many notes on the burial customs of the same tribes, and these, together with much additional material, are being used in the preparation of another manuscript, entitled "Burials of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi."

Miss Mary Lois Kissell has begun the preparation of the manuscript of a bulletin on weaving of the Northwest Coast Indians, which it is hoped will be later followed by others on other geographical areas.

A small allotment was given to Mr. Gerard Fowke to carry on special archeological work in Greenup, Ky., near Portsmouth, Ohio, on mounds figured and described by Squier and Davis and T. H. Lewis. On the opposite bank of the Ohio River a celebrated cache of pipes has been found and it was hoped that a similar deposit might be discovered near the effigy mound on the south side. The results of this examination are negative so far as the object desired was concerned, but several interesting observations were made of a nature too technical to discuss in this place.

EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, assisted by Mrs. Frances S. Nichols. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED

- Bulletin 67. *Alsea Texts and Myths* (Frachtenberg). 304 pp.
Bulletin 71. *Native Cemeteries and Forms of Burial East of the Mississippi* (Bushnell). 160 pp., 17 pl.
Bulletin 72. *The Owl Sacred Pack of the Fox Indians* (Michelson). 83 pp., 4 pl.
List of Publications of the Bureau of American Ethnology. 44 pp.

PUBLICATIONS IN PRESS OR IN PREPARATION

- Thirty-fourth Annual Report. Accompanying paper: *A Prehistoric Island Culture Area of America* (Fewkes).
Thirty-fifth Annual Report. Accompanying paper: *Ethnology of the Kwakiutl* (Boas).
Thirty-sixth Annual Report. Accompanying paper: *The Osage Tribe: Rite of the Chiefs; Sayings of the Ancient Men* (La Flesche).
Thirty-seventh Annual Report. Accompanying paper: *The Winnebago Tribe* (Radin).
Thirty-eighth Annual Report. Accompanying paper: *An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians* (Roth).
Bulletin 73. *Early History of the Creek Indians and Their Neighbors* (Swanton).
Bulletin 74. *Excavation of a Site at Santiago Ahuitzotla, D. F. Mexico* (Tozzer).
Bulletin 75. *Northern Ute Music* (Densmore).

Bulletin 76. Archeological Excavations in the Ozark Region of Central Missouri (Fowke).

Bulletin 77. Villages of the Algonquian, Siouan, and Caddoan Tribes West of the Mississippi (Bushnell).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 80. Mandan and Hidatsa Music (Densmore).

DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

	Copies
Annual reports and separates.....	1, 998
Bulletins and separates.....	10, 288
Contributions to North American Ethnology.....	34
Miscellaneous publications.....	475
Total.....	12, 795

ILLUSTRATIONS

Mr. De Lancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

Photographic illustrations for distribution and office use....	645
Negatives of ethnological and archeological subjects.....	351
Negative films developed from field exposures.....	70
Photostat prints made from books and manuscripts.....	120
Illustrations prepared and submitted for publication.....	391
Line and color drawings.....	195
Illustrations proofs edited.....	158
Lithographic proofs examined at Government Printing Office..	25, 000

LIBRARY

The reference library continued in the immediate care of Miss Ella Leary, librarian, assisted by Mr. Charles B. Newman and Mr. Samuel H. Miller.

During the year 775 books were accessioned, of which 50 were acquired by purchase, 325 by binding of periodicals, and 400 by gift and exchange. The periodicals currently received number about 900, of which 30 were received by subscription, the remainder being received through exchange.

The bureau has also received 269 pamphlets, giving at the close of the year a working library of 24,155 volumes, 14,777 pamphlets, and several thousand unbound periodicals.

During the year an increasing number of visitors have applied to the library for books. Information has been furnished and bibliographic notes compiled for the use of correspondents. The officials of the Library of Congress and of the Government departments have also made use of the library through frequent loans during the year.

In addition to the use of its own library, which is becoming more and more valuable through exchange and by limited purchase, it was found necessary to draw on the Library of Congress for the loan of about 500 books.

As mentioned in the last annual report, one of the most urgent needs of the library at the present time is more shelf room for its books.

COLLECTIONS

The following collections, acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

Stone arrow polisher, presented to the bureau by Dr. Walter E. Roth, of Georgetown, British Guiana. (65625.)

Collection of archeological material, collected in the spring of 1920 in northwestern Arizona and southwestern Utah by Mr. Neil M. Judd. (65764.)

Pseudo stone implement, found by Rev. E. N. Kremer near Camphill, Cumberland County, Pa. (65795.)

Three human skulls and bones, collected by Dr. J. Walter Fewkes at Fire Temple Group, Mesa Verde National Park, Colo. (66011.)

Skeltons collected during the summer of 1920 near Nashville, Tenn., by Mr. W. E. Myer. (65115.)

Archeologia and skeleton, collected by Mr. J. A. Jeancon from a ruin near Taos, N. Mex., in the summer of 1920. (66156.)

Archeologia and human bones, found at Indian Hall, Fla., by Mr. Charles T. Earle. (65551.)

Skull bones and lower jaw, found at village site near Gatesville, Tex., by Prof. J. E. Pearce. (65334.)

PROPERTY

Furniture and office equipment were purchased to the amount of \$140.83.

MISCELLANEOUS

Clerical.—The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Mrs. Frances S. Nichols assisted the editor. Mr. Anthony Wilding served as messenger and typist to the chief.

Personnel.—Mr. Samuel H. Miller has been appointed to assist Miss Leary in the library in place of Mr. Charles B. Newman, transferred to the Smithsonian.

Mr. J. A. Jeancon, who served as assistant to the chief in the work at Mesa Verde, was later appointed temporary ethnologist, but at the close of two months' work in Washington, resigned to accept a position in the State Historical Museum, Denver, Colo.

Respectfully submitted.

J. WALTER FEWKES,

Chief, Bureau of American Ethnology.

Dr. CHARLES D. WALCOTT,

Secretary, Smithsonian Institution.

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ANNUAL REPORT
OF THE
BUREAU OF AMERICAN ETHNOLOGY
FOR THE FISCAL YEAR ENDED JUNE 30, 1922

J. WALTER FEWKES, Chief

SIR: In response to your request I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1922, conducted in accordance with the act of Congress approved March 4, 1921. The act referred to contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including the necessary employees and the purchase of necessary books and periodicals, \$46,000.

The Indians of the United States are undergoing cultural changes which will in a short time so modify their material culture that little will be left in that line for the ethnologist to study. It is imperative that the bureau exert itself in every way to record the material culture and cult objects before the final change occurs. The objects illustrating this culture are now mainly preserved as heirlooms in ceremonies, and it is particularly desirable that these be described and their meanings interpreted before they pass out of use completely.

FIELD RESEARCHES OF THE STAFF

In 1904 the bureau inaugurated at Casa Grande a method of archeological work which has now been adopted by most of the institutions working in the southwestern part of the United States. Previous to this time archeologists rarely paid attention to the preservation of walls of ruins, but sacrificed these in their zeal to make as large collections of artifacts as possible.

The bureau method of preserving the buildings for future students has now been adopted by other institutions, and work of this nature is being carried on at Pueblo Bonito, Chaco Canyon, by the National Geographic Society; at Chettro Kettle, in the same canyon, by the School of American Research, Santa Fe, N. Mex.; at Pecos, N. Mex., by the Phillips Academy, Andover, Mass.; and at Aztec by the American Museum of Natural History of New York. This method of archeological work has created a great interest in archeological problems, as indicated by the increased number of visitors to these ruins, and has a great practical value as an asset to the communities in which these ruins are situated. It is the intention of the chief of the bureau to keep abreast of the other institutions in this regard.

In the past year the bureau has entered upon two new lines of work which it is believed will not only increase its scientific output by intensive research but also appeal strongly to the popular interest and to the diffusion of knowledge already acquired. For many years it has not been found practical to continue work on the Hawaiian Islands, which is mentioned as one of the important items of ethnological research in the above act of Congress. A meeting of the Pan Pacific Convention in Honolulu shows an increased interest in the study of the Polynesian islands and their relation to the question of the peopling of America from the South Seas. Mr. Gerard Fowke, a collaborator of the bureau, was commissioned to attend this convention in the interest of the Smithsonian Institution, and he was instructed to gather whatever information he could in relation to the archeology of the people, if any, that preceded the Hawaiian race of the present day. Although his results were negative, it is gratifying that the bureau took part in this convention, as it opened up several lines of work in other islands which it may later be advantageous to follow. The Sandwich Islands lie practically on the periphery of the sphere of influence of the Polynesian culture, and local investigators have the Hawaiians well in hand. There is considerable to do in mapping the distribution of temples and ancient buildings, but this work is being rapidly done

by local archeologists. It is desirable, however, that the bureau take up archeological work in Samoa or some island nearer the center of distribution of the race which has occupied almost all the land in the Pacific Ocean. The imperfect facilities for transportation from one island to another and the loss of time in transit is a serious handicap in this work.

A second line of research which promises even more to the scientific investigator and the tourist is a study of the material culture, especially the architecture, of the houses of the aborigines of Alaska. In the growth of the canning industry the Indians who formerly inhabited southern Alaska have been drawn away from their aboriginal villages, leaving them deserted and their totem poles and buildings to the mercy of fire and decay. The monuments are rapidly going to destruction, and it is very desirable that steps be immediately taken to preserve these buildings or a typical example of them before they are utterly destroyed.

One of these settlements, Kasaan, has already been made a national monument. Steps should be taken to preserve others.

Dr. T. T. Waterman was sent by the bureau to investigate the whole question—primarily to secure whatever vanishing ethnological data is still extant. He was instructed to gather information on the symbolism of the totem poles, the character of the houses, distribution of clans, and whatever scientific data can be obtained from those still living who once inhabited these villages. This line of investigation appeals very strongly to the chief from his knowledge of the growth in interest of the Mesa Verde National Park. In 1908, when he began work on this park, only 25 tourists visited the Mesa Verde; this year, 1922, the number will reach 4,500. This shows a great growth of interest in the work being done there; and, as many tourists now seek Alaska in their summer vacation, one of these villages repaired would attract many visitors. It is proposed to continue this work next summer with an enlarged appropriation.

The work of the bureau in other lines has gone on with customary vigor. The chief has repeatedly emphasized

the necessity of rescuing the linguistic and sociological data of those Indian stocks that are rapidly disappearing. It would be culpable if any of these languages should vanish completely without some record. Interest in the aborigines of this continent has greatly increased in the last years, especially on account of the stimulus of the movement called "see America first."

In addition to his purely administrative duties, considerable time has been devoted by the chief to researches in the field. This work was archeological in nature and a continuation of that of previous years, and was carried on in cooperation with the National Park Service of the Department of the Interior.

Two months were spent in the neighborhood of Far View House, the first pueblo discovered on the Mesa Verde National Park, six years ago. In the course of the work this fine ruin was thoroughly repaired and put in such condition that it will now resist the wear of the elements for several years. Ruins once repaired must be watched with care. On an average between 3,000 and 4,000 visitors, mainly tourists, visit the Mesa Verde National Park and examine the excavated ruins. Fifteen thousand visitors have already passed through Spruce-tree House and Cliff Palace, and the wear on the soft rock of which the ruins are made is beginning to show. Unless constant vigilance is exercised the walls will fall within a short time. Any deterioration ought to be repaired annually. Tourists are not now permitted to visit any of the ruins on this park without a guide, a regulation that has been strictly enforced during the past year.

Field work in May and June was devoted to excavating a ruin called Pipe Shrine House, situated to the south of Far View House. This was apparently a communal building, or one not inhabited, which was used by the people of the pueblo for sacred ceremonies. It would appear that Pipe Shrine House, so called, bears the same relationship to Far View House that the Lower House of the Yucca National Monument does to the Upper. The great kiva at Aztec, in New Mexico, lately excavated, bears a some-

what similar relationship to the main ruin, and there are several of the Chaco Canyon ruins where similar conditions prevail.

The site of Pipe Shrine House when work began was a low mound covered with sagebrush with a saucerlike depression in the center, not unlike several others in the immediate vicinity of Far View House. The removal of vegetation and débris and an excavation of the rooms revealed a rectangular building 70 by 60 feet, with walls averaging one story high. It had indications of a lofty tower in the middle of the western side, which must have imparted to the building somewhat the appearance of a church steeple or the minaret of a mosque. The large room was situated in the center of the ruin, its floor being about 20 feet below that of the other rooms. This subterranean room is a kiva, but it differs from others of like type on the park in that it has no fireplace in the center of the floor, no ventilator or deflector, and has eight mural pilasters instead of six to support the roof. The fallen walls within showed indications of a great conflagration, the stones and adobe being turned red and the walls turned bright red by the great heat. On the floor of the kiva was an inclosure set off by a semicircular wall where the action of fire was particularly evident. In the inclosure were found many votive offerings, the most numerous of which were a dozen clay tobacco pipes of various shapes and sizes, one or two decorated on their exteriors. These pipes, which are the first ever found on the Mesa Verde, evidently had been smoked by the priests and then thrown into the shrine. Besides the pipes the shrine also contained several fine stone knives, small decorated clay platters, various fetishes, and other objects. Pipe Shrine House was entered on the south by two doorways, midway between which a large pictograph of a coiled serpent was incised on a large stone set in the wall. To the south of the building there was a plaza surrounded by a retaining wall and directly opposite one of the entrances there are aboriginal steps which lead to a rectangular shrine 4 feet in size, in which were found a number of water-worn stones surrounding a large stone image of the mountain lion. The contents

of this shrine were replaced, the mountain lion left in his original position, and the inclosure covered with a netting to prevent the possible removing of the objects from their places. Other shrines and several stone idols of considerable size were found in the neighborhood. The idols found at Pipe Shrine House represent the snake, mountain lion, mountain sheep, and bird—an important discovery, as previously only one stone animal idol had been found at the Mesa Verde Park.

One of the most instructive experiences of the archeologist is to see a skeleton centuries old as it lies in the grave. One of the ancient people of Pipe Shrine House was left in a prepared chamber for tourists to inspect.

The cemetery lies on the southeast corner of this ruin, and in it were found several human burials from one of which a good skeleton was chosen to illustrate the manner of burial and the mortuary offerings. This skeleton was not removed from the grave but was surrounded by a stone wall forming a room, rectangular in shape, protected by a grating and a waterproof roof. Visitors may now see one of the skeletons of the race of cliff dwellers as he was placed in his grave more than 500 years ago; not a single bone has been moved from position. This is the first time in North American archeology that an effort has been made to protect an Indian skeleton in situ, and the success of the method is self-evident, judging from the comments of visitors.

The pipes found in the shrine of the kiva have suggested "Pipe Shrine House" as a name for the building. It seems to have been given up to the rites and ceremonies of the inhabitants of the neighboring Far View House.

The second ruin excavated at Mesa Verde was formerly the habitation of one clan or of one social unit composed of relatives on the mother's side, on which account this ruin was given the name "One Clan House." It is situated about one-eighth of a mile south of Pipe Shrine House and consists of a circular subterranean room or kiva of fine masonry surrounded by rooms for sleeping, others for grinding corn, and still others used as bins for corn or storage rooms. The kiva was the ceremonial or men's room.

One of the most instructive ruins excavated in 1922 is a round tower, 15 feet in diameter and 10 feet high, situated about 300 feet north of Far View House. In front of this tower were found three subterranean kivas under the fallen débris, in one of which were constructed walls of a square building, indicating secondary occupation, and erected after the abandonment of the kiva. This tower and accompanying kivas may be called Far View Tower, and the indications are that it was used for observations, particularly of the sun on the horizon at sunrise and sunset, in order to determine the time for planting and other dates important for an agricultural people. These towers were probably rooms for the worship of the sun and other sky gods.

Some distance north of Far View Tower there were discovered in the cedars a number of large stones arranged vertically in rows projecting 3 feet above the surface of the ground. Excavation showed that these megaliths were walls of buildings of anomalous character, indicating a new type of architecture on the Mesa Verde. This ruin, "Megalithic House," was not completely excavated, but all the others were repaired, the tops of the walls being covered with cement to prevent future erosion.

An important collection made by the chief in the course of the summer's work contains many rare and unique specimens, an account of which will later be published in a report on the excavations.

During his work at the Mesa Verde the chief gave camp-fire talks in the special amphitheater constructed for that purpose by the superintendent of the park. The average attendance on these talks was about 40 each evening, and at times, as on a visit of a convention of teachers, there were 150 listeners. He also spent considerable time daily taking parties over the new work which he was doing in the neighborhood of Far View House.

Ever since 1917 the chief has been attempting to have the sites of three clusters of towers in Utah withdrawn from private ownership and made into a national monument, to be called Hovenweep National Monument. Various circumstances have made it impossible to bring this about.

During the past summer, however, Mr. Hatze, a Land Office surveyor, determined the metes and bounds of these three clusters and later Doctor Fewkes visited them in order to determine their present condition. He found that a settler had filed claims on the neighboring land, the adjoining one-quarter mile section, and erected his cabin. Some of the cabins in the neighborhood have stones remarkably like those of the towers; in other words, the necessity for immediate action, if these towers are to be preserved for posterity, is apparent, and the land on which they are situated should be withdrawn from settlement and the buildings put under the care of proper authorities. The three groups are known as the Square Tower, the Ruin Canyon group; the Holly and Keeley Towers; and the large ruin at the head of the Cajon Mesa called Cool Spring House, on account of the fine water which is found in the cave back of the cliff house.

During the fiscal year Dr. John R. Swanton, ethnologist, was engaged in extracting the words from his Hitchiti texts and adding them to his dictionary on cards of the Hitchiti language, and in preparing a grammatical sketch of 75 pages based on this material and that collected by Dr. A. S. Gatschet.

Much time was devoted to transferring words to cards from his Alabama texts, and from material in Alabama secured through native informants, into an Alabama-English dictionary. The first 25 pages of a grammatical sketch of this language have also been completed.

A comparison has been made between the Natchez language on the one hand and Koasati and Hitchiti on the other, in order to establish the position of Natchez in the Muskogean linguistic stock. This has not yet been set down in full, but all of the essential points have been typewritten on cards.

A paper of 44 pages has been prepared in elaboration of some recent discoveries regarding the Siouan peoples, discoveries which have an especial bearing on the relationship of the various Siouan groups to one another.

A small amount of work has been done in continuance of Doctor Swanton's investigations into the economic basis of

American Indian life, particularly a study of aboriginal trails and trade routes.

The work of collecting stories dealing with the old clan divisions of the Chickasaw Indians, undertaken by a Chickasaw at Doctor Swanton's suggestion, has met with gratifying success, 10 or 12 such stories having already been sent in.

During the fiscal year Mr. J. N. B. Hewitt, ethnologist, was engaged entirely in office work.

In his report for the fiscal year 1921 it was stated that a number of Chippewa and Ottawa texts had been obtained in 1900 from Mr. John Miscogeeon, an Ottawa mixed blood, then in Washington, D. C., and that Mr. George Gabaoosa, a mixed-blood Chippewa, had been employed to amend and to supply the Chippewa versions of these texts. He also amplified the texts by substantial additions. This material covers 125 pages. Mr. Gabaoosa's fixed habit of writing his native language by means of the alphabet employed by the missionaries made it needful that these texts thus written be translated into the alphabet devised by Maj. J. W. Powell, founder of the Bureau of American Ethnology, for recording native Indian languages. This work of transliteration is one of considerable difficulty, because the aid of a native Chippewa speaker is not available in the office and Mr. Hewitt does not speak Chippewa.

In addition, Mr. Hewitt continued work in preparing the Muskhogean material detailed in his last report.

Mr. Hewitt also continued his typing of the native Onondaga texts of the second part of the Iroquoian Cosmology, the first part having appeared in the Twenty-first Annual Report of the bureau. There are now 255 pages of text material in final form.

As custodian of manuscripts Mr. Hewitt reports that no new linguistic records were added to the material permanently in his charge. Collaborators and others make temporary deposits of manuscripts upon which work is being done, and these are not catalogued as of permanent deposit.

Mr. Hewitt spent much time and study in the preparation of data for official replies to correspondents of the bureau and of the Indian Office also, the latter by reference only. The scope of the inquiries covers almost the entire range of human interest, often quite outside of the specific researches properly coming within the activities of the Bureau of American Ethnology, but many are only requests for the derivation of some alleged native Indian place or proper name, often greatly Anglicized and mutilated. Some of these inquiries require more than a day's work to answer, as it is sometimes necessary to visit the Congressional Library in search of data. Data for more than 75 such inquiries were prepared.

Immediately following the death of the late Mr. James Mooney, Mr. Hewitt assisted Mrs. Mooney in assorting and separating the personal letters and papers of Mr. Mooney, some in advanced stages of preparation (the accumulation of more than 30 years' activity in an official capacity), from those which by their nature are official documents, and correspondence and photographs. More than a week was devoted to this work.

Before placing this material in the new storeroom a rough classification was made of it. Five main groups were made, corresponding roughly with the five chief papers which Mr. Mooney had under way for a number of years before his demise, namely, (a) A Study of the Peyote and Its Accompanying Religious Cult; (b) A Monograph on the Population of the Indian Tribes When First Known; (c) A Paper on Cherokee Medical Formulas Recorded in the Sequoya Alphabet by Native Priests; (d) Kiowa Heraldry; and (e) A Study of the Cheyenne and Arapaho Shields. Owing to the peculiar chirography of Mr. Mooney and his excessive use of abbreviations peculiar to himself, this task proved to be a most tedious and difficult one.

Mr. Hewitt, who represents the Smithsonian Institution on the United States Geographic Board, attended all its regular meetings except one, and all the special meetings of the board.

Mr. Francis La Flesche, ethnologist, continued during the fiscal year on the task of assembling his notes for the second volume of his work on the Osage tribe. The manuscript for the second volume, which embraces two versions of an ancient Osage ritual entitled; "Noⁿ-zhiⁿ-zhoⁿ Wa-thoⁿ, Songs of the Rite of Vigil," was completed and turned in to the bureau on February 25, 1922, where it awaits publication.

The first version of this ritual, which is counted as next in importance to the Hearing of the Sayings of the Ancient Men, published in the Thirty-sixth Annual Report of the bureau, was given by Wa-xthí-zhi of the Puma gens of the Osage. This man had learned the ritual from his father, Wa-thu'-ts'aga-zhi, who is said to have been one of the best informed Noⁿ'-hoⁿ-zhiⁿ-ga in the tribal rites. With some difficulty Mr. La Flesche managed to persuade Shoⁿ'-ge-moⁿ-iⁿ, of the Peacemaker gens, a more conservative man than Wa-xthí-zhi, to give the second version, which belongs to his gens. As this ritual pertains to war, old Shoⁿ'-ge-moⁿ-iⁿ desired it to be clearly understood that his gens performed the ceremonies of the ritual as a mere matter of form rather than as an actual owner of the rite. The office of his gens, he explained, was one that was instituted for the conservation of life and the maintenance of peace within the tribe and with other tribes not related to the Osage.

On the completion of the manuscripts for the second volume, Mr. La Flesche began the task of assembling his notes for the third volume, which will embrace two tribal rituals, the first of which is entitled "Wa-xó-be A-wa-thoⁿ, Songs Relating to the Wa-xó-be." The Wa-xó-be is the sacred hawk, the symbol of the valor of the Osage warrior. The second ritual is entitled "Çá Tha-dse Ga-xe," literally, The Making of the Rush, but meaning the Making of the Woven Rush Shrine for the Wa-xó-be.

On July 1, 1921, Dr. Truman Michelson, ethnologist, was at Tama, Iowa, continuing his work among the Fox Indians of that State. He completed gathering data on Fox mortuary customs and beliefs and restored texts appertaining to these and worked out a vocabulary as far as possible in

the field. On the completion of this he restored phonetically a text previously collected on the Fox society known as "Those who worship the little spotted buffalo." He also worked out, as far as practical, the vocabulary to this text. At the close of August he returned to Washington and elaborated the material collected in the field. During the fiscal year Dr. Michelson submitted two manuscripts for publication, namely, "Notes on Fox Mortuary Customs and Beliefs" and "Notes on the Fox Society Known as 'Those Who Worship the Little Spotted Buffalo.'"

On May 25 Doctor Michelson left for the West to conduct researches among the Algonquian Indians of Iowa, Kansas, and Oklahoma. He stopped at Columbus, Ohio, to consult with Prof. L. Bloomfield. As a result of this conference it became apparent that Menomini is very clearly more closely related to Cree than to any other Algonquian language. He found the work at Shawnee, Okla., very difficult and expensive, owing to the fact that the Algonquian Indians of that State are scattered and distances are very great. However, during his short stay he secured sufficient information to show definitely that not only the Sauk but also the Kickapoo share many mortuary customs and beliefs with the Fox of Iowa. He thinks that these correspondences are too detailed and too numerous to be of independent origin and must be due to dissemination. This point regarding the Sauk and Fox is not novel, but it is regarding the Kickapoo. There are, however, some differences in the mortuary customs of all neighboring tribes. This last fact is not so well known. A detailed study of all three neighboring tribes, Siouan as well as Algonquian, on these matters alone can clear up the history of the borrowings. He expects to obtain data on these points regarding the Shawnee and Potawatomi also.

The beginning of the fiscal year found Mr. J. P. Harrington, ethnologist, engaged in completing his bulletin on the Kiowa language, in several respects one of the most remarkable of the American Indian tongues. Aside from the phonetic system, with its unusual frequency of long vowels and diphthongs, we may point to the noun, several declensions of

which form the singular by adding the same suffixes which other declensions use for forming the plural. These singulars of plural form are doubtless conceived as collective, for a personal pronoun in apposition also has the plural form. Thus pronominal agreement arises many times more complicated than that in the three-gendered languages of Europe, and is further involved by subjective, objective, and indirective pronouns largely combining to form a single syllable—a very terse yet involved system of speech. A number of Kiowa and Tanoan songs were found to have the melody following in exaggerated form the intonation of the spoken language. Thus the song “agoyopovi navi ha, wimbo winda” has the high tones of its words also high pitched in the song. This has led to the important discovery that certain melodies in intoned languages may take their clue from the intonation of the words. The Kiowa vocabulary secured is quite complete and forms an interesting contribution to the study of the place names, animal names, and plant names adopted by a tribe when it leaves its old home and moves to a new region. Mr. Harrington proceeded at the close of July to California to continue his studies of the Indians of the Chumashan area of that State. This expedition proved fruitful in results beyond all expectation. Special emphasis was laid on the place names, material culture, and language. More than 300 photographs of Indian places and historic landmarks were secured, together with a wealth of highly interesting and important data. The collecting of Indian place names in the Eastern States was neglected until too late, so that we have only a few names in distorted spelling and of uncertain etymology. It is still possible to obtain full data in many parts of the West, and there is scarcely any work which the bureau can undertake which is more important or urgent, either in popular interest or as a help to the future ethnologist, historian, or archeologist.

Linguistic study is peculiarly important in this area, since it resurrects past culture and records perishing material for comparison with remote languages. Thirty new Ventureño songs were obtained from one singer, all with native words. The technique of the split-stick accompani-

ment and the dance steps were faithfully studied and the words were exhaustively compared with the corresponding prose forms.

Mr. Harrington's opinion was confirmed that the southern California culture has many curious points of resemblance with that of the Southwest. Even the Pueblo plumed prayer stick, with sand paintings and the ceremonial use of meal and seeds, have been found also among the Californians.

Twice during the fiscal year Mr. Harrington was temporarily transferred to the Department of the Interior for special archive work. At the close of the fiscal year he returned to Washington.

SPECIAL RESEARCHES

During the past year Miss Frances Densmore has extended her study of Indian music by recording songs among the Yuma, Cocopa, and Yaqui tribes, making a total of nine tribes among whom this work has been done. Mohave songs were obtained from two members of that tribe living on the Yuma Reservation, and one Maya song was recorded in the Yaqui village. Four manuscripts on Indian music were submitted, the titles being "Songs Concerning Elder Brother and His People, and Other Papago Songs," "The Rain Ceremony of the Papago," "A Cocopa Legend and its Songs," and "Deer Dance Songs of the Yuma, Yaqui, and Maya Indians." In addition to her work on Indian music Miss Densmore has completed for publication two books on Chippewa culture with the titles "Uses of Plants by the Chippewa," and "Chippewa Customs." The former book contains descriptions of the uses of 168 plants in medicine, food, dye, charms, and general utility, the section on medicine being in tabulated form and showing the uses of the plant by other tribes, where such use is recorded, and its use by the white race, if such occurs. This tabulation shows the ailments for which a plant was used, the part of the plant utilized, the manner of its preparation, the dosage, and, in some instances, the time before an improvement in the condition of the patient was expected. The latter book contains sections on Chippewa nouns and their structure, on

the various industries by which the tribe maintained itself, and on the care and training of little children. New material was submitted in the form of two manuscripts, *Certain Customs of the Chippewa in Ontario, Canada*, and *Chippewa Nouns and Their Structure*, these titles corresponding to the principal subjects under consideration. Three brief trips in Minnesota and Wisconsin were made for this work. Miss Densmore also read the page proof of her book on *Northern Ute Music*.

In February, 1922, Miss Densmore went to Yuma, Ariz., where she remained six weeks. During that time she made a brief trip to a Cocopa settlement located near the Colorado River and about 6 miles from the Mexican boundary. The older Cocopa living at this point came from Mexico about 18 years ago and neither they nor their children had a status in the United States. At this time, however, they were enrolled under the Yuma Agency, Miss Densmore assisting in the enrollment by writing their Cocopa names in simple phonetic spelling. Forty Cocopa songs were recorded, comprising songs of two representative dances and of a cremation legend. For this work it was necessary to employ two interpreters.

It is the custom of both Cocopa and Yuma to cremate their dead, and Miss Densmore witnessed a Yuma cremation soon after her arrival. The dead man had been a leading singer at cremations and the ceremony was given with the elaborateness which would be accorded a chief. The songs were very old and are seldom used at the present time. Miss Densmore obtained phonographic records of these songs, as well as of the Kurok or memorial ceremony which is held each summer for the more important persons who have died during the year. Images of the deceased persons are carried in the dances of the Kurok and publicly burned. The history of these ceremonies, with the songs, was obtained from the oldest man who is an authority on the subject. It is the belief of these people that the spirit departs from the body in the flame of the cremation.

A new musical form was found among the Yuma and Cocopa, consisting of a "song cycle" which required an

entire night for its rendition and is commonly called a story. Each of these stories has its designated accompaniment. Among the Yuma the accompanying instruments are a gourd rattle and an inverted basket struck with a bundle of arrowwood, a willow stick, or the palm of the hand. Sometimes two bundles of arrowwood or two sticks are used, being held in the same hand. Specimens of these instruments were obtained, also a bamboo flute and two bamboo flageolets. The music of the latter was phonographically recorded. The Yuma songs included those of the treatment of the sick, those of games, and three interesting lullabies.

The work among the Yaqui was conducted at Guadalupe village, near Tempe, Ariz. The older Yaqui in this village were born in Mexico. These Indians have received no favors from the United States Government and support themselves by manual labor. They seem happy and contented in their little desert village. Miss Densmore witnessed their deer dance and later recorded the songs from one of the leading singers, a native of Mexico. The occasion of the dance was the celebration of Easter eve. The songs were accompanied by playing upon four half gourds. The Yaqui have two distinct forms of music, one which appears to be entirely native and the other showing a Mexican or Spanish influence.

A large proportion of the songs transcribed and heard during the past year were accompanied by a gourd rattle, and are of unusual musical value, both in pleasing melody and rhythmic interest. This suggests an inquiry as to whether the songs accompanied by the rattle are generally more musical than those accompanied by the drum. It is interesting to note that the songs of the Yuma and Cocopa resemble each other but differ entirely from the songs of the Papago who live adjoining them. The songs of the Yaqui, so far as observed, differ from both these tribes except in the frequent use of rests. The rhythm of the rattle in Yuma and Cocopa performances is more elaborate and contains more frequent changes than that of the accompanying instrument in any tribe thus far studied. A correspondence between the words of the song and the progressions of the melody is particularly evident in these songs.

Early in March, 1922, Dr. T. T. Waterman, ethnologist, proceeded to Alaska, under temporary appointment in the bureau, with instructions from the chief to scrutinize certain native towns in southeastern Alaska. His purpose was to ascertain how many totemic monuments exist there, and to get information concerning the carvings. The place of special interest was a former settlement of Alaskan Haida, known as Kasaan. It was possible during the three months that Doctor Waterman spent in Alaska to make a rapid survey not only of Kasaan but of the towns known as Village Island, Tongass, Cape Fox, Klinkwan, Howkan, Sukwan, Klawak, and Tuxekan. Some extremely interesting monuments, including many tall and imposing totem poles, were examined and photographed. Charts or sketch maps were brought back from the field, which show the number of monuments still standing in each town and their state of preservation. The observer was fairly successful in obtaining from the Indians an account of the meaning of the carvings on the poles, which have never been adequately described. In many cases the carvings refer to mythical tales, which are often of a very interesting type.

In addition to the work on the totemic monuments, the observer recorded a relatively complete list of the native place names in the southeastern part of Alaska. Many hundreds of these names were entered on the map of the region, and translations and explanations were obtained from the Indians. The work was fairly complete for the area covered.

Under further instructions from the chief, Doctor Waterman examined the coast line of the part of Alaska which he visited, with a view to discovering sites where archeological excavations might possibly be conducted. The results of this work were largely negative. As a matter of fact only one site was found where there seemed to be archeological remains. This hasty survey seemed to indicate that archeological remains in this part of Alaska are extremely scanty.

Returning to the bureau on June 15, Doctor Waterman began the preparation of a report on the Alaskan monuments.

In the fall of 1921 Mr. W. E. Myer investigated sites in South Dakota and western Missouri, known to have been occupied by the Omahas and Osages in early historic times, after they had come in contact with the whites but before they had been changed thereby to any considerable extent.

Especial attention was paid to any resemblance to the ancient cultures found in the valleys of the Ohio, Cumberland, and Tennessee Rivers. This line of research was suggested by certain traditions of both the Omahas and the Osages, and other branches of the great Siouan linguistic family, that they had at one time lived east of the Mississippi River, and after many wanderings, stopping here and there for years, finally reached their present homes in South Dakota and western Missouri.

Mr. Francis La Flesche reported that the traditions of his people, the Omahas, were that they had occupied two important villages on what the Omahas call "the Big Bend of the Xe," at some time in the seventeenth or eighteenth century.

Mr. Myer was enabled to locate these two ancient villages; one, Split Rock site on the Big Sioux River, at its junction with Split Rock River; the other where the Rock Island Railroad now crosses the Big Sioux River, about 10 miles southeast of Sioux Falls. It is here designated the Rock Island site.

Sometime in the seventeenth century the Omahas and Poncas removed from the Pipestone region in Minnesota and finally, after some further wanderings, built a fortified town on the Rock Island site. While living in this fortified place they were attacked and defeated by an enemy, most probably the Dakotas, and finally forced to leave the region. There is a tradition that they buried their dead from this fight in a mound. This tradition was confirmed by excavations made by Mr. A. G. Risty and Mr. F. W. Pettigrew, who report finding a considerable amount of human bones. Some glass beads and small copper bells of white man's make were also found in one of these mounds. There is evidence that this site was occupied somewhere between 1700 and 1725.

After leaving the Rock Island site, the Omahas and Poncas roved without long permanent settlements for several years, but finally returned to the Xe and built a permanent village at Split Rock at the junction of the Big Sioux and Split Rock Rivers.

Mr. Myer spent the month of October, 1921, in exploring this Split Rock site. Many interesting relics of the Omahas were here unearthed, which throw new light on the life of these people before they had been very much changed by contact with the whites.

The 30 mounds on the ridge between the two rivers mark the site of that portion of the old town occupied by the Omahas. On a hill one-half mile to the east was a group of 10 more mounds, occupied by the Poncas before they split away from the Omahas.

By following the clues furnished by the traditions, three low mounds were discovered on the tall ridge $1\frac{1}{2}$ miles to the west. These were said to have marked the lookouts for the main village; they command a view, ranging from 6 to 15 miles, on all sides. The mounds on the Split Rock site appear to have nearly all been used for burial.

The exploration of mound No. 1, on the Omaha section of the town, showed a beautiful little knoll on the edge of the steep, bluff-like bank of Split Rock River. In its soil the Indians dug a shallow pit, about 12 by 6 feet and 2 feet deep. Here were placed bones belonging to five bodies, several of which appeared to have been buried after decay of the flesh. One body appeared to have been closely flexed before it was placed in the pit. The position of the skeleton of a horse with a crushed frontal bone showed that when this body bundle had been placed in the pit, a large horse, about seven years of age, had been led to the knoll and there killed. Then, over all these, a low, round-topped mound, 60 feet across at the base and $5\frac{1}{2}$ feet in height, had been raised.

Mound No. 2, the largest of the group, was round topped, 110 feet across at the base, and 10 feet high. A rectangular charnel pit, 12 by 14 feet and 2 feet deep, had been dug in the surface of the soil near the center of the town. This pit was thoroughly lined or coated with a white layer about

one-eighth inch in thickness, made from calcined bones. The bottom and sides of the pit were then probably covered with furs, now indicated by a thin layer of animal matter on the white coating. Bones representing about 50 human beings had been laid on the floor of this fur-lined pit.

Traces of the thin fur layer were also found on top of this solid mass of human bones. Over this fur covering a layer of bark was placed, and upon this bark earth had been spread to a depth of from 3 to 6 inches. The earth was then smoothed and pressed down, and on this surface a white coating, similar to that on the bottom and sides, had been spread. Only one small, cylindrical copper bead was found with all this mass of bones, and no object of white man's manufacture was found. There is evidence that this portion of the site was occupied by the Omahas somewhere between 1725 and 1775.

While the Omahas and their kindred, the Poncas, lived together at the Split Rock site some of the most important events in their history took place. The united Omahas and Poncas and their old enemies, the Cheyennes and Arikaras, here made a peace which was concluded with great ceremony. At the urgent request of the Arikara the sacred chant and dance of the calumet was used to cement this union.

In Vernon and Bates Counties, western Missouri, near the junction of the Osage and Marmiton Rivers, Mr. Myer found several sites known to have been occupied by the Osage Indians in early historic times, shortly after they had come in contact with the whites.

The largest Osage village in Vernon County was situated at Old Town, on Old Town Creek, about $3\frac{1}{2}$ miles south of Pikes village of the Grand Osage. This site covers about 40 acres and is the best known of any of the Osage sites. It has yielded a large amount of iron axes, gun barrels, gunlocks, fragments of brass kettles, glass beads, and other articles of early white manufacture, as well as objects of purely aboriginal origin.

The most picturesque Indian site in this Osage region is Halleys Bluff, on the Osage River, about $1\frac{1}{2}$ miles downstream from where the Marmiton and Marais des Cygnes

unite to form the Osage River. There is evidence showing occupancy of this bluff by Indians long before the coming of the white man and probably before the coming of the Osages.

During the month of October, 1921, Mr. David I. Bushnell, jr., visited Scott Field, east of Belleville, Ill., for the purpose of getting airplane pictures of the Cahokia mounds. The commanding officer of the field, Maj. Frank M. Kennedy, appreciating the interest and importance of the work, detailed Lieuts. Harold R. Wells and Ashley C. McKinley, of the Air Service, to make the pictures. They succeeded in making some very interesting photographs of mounds in the vicinity of Cahokia, as well as of the great mound itself, but unfortunately the photographic apparatus at that time available at Scott Field was not suitable, and although the pictures obtained were not very clear, no better results could have been secured with the cameras which they were obliged to use. Four of the pictures made by Lieutenants Wells and McKinley were reproduced as Figures 101, 102, 103, and 104 in *Explorations and Field Work of the Smithsonian Institution in 1921* and should prove of special interest as the first photographs of American earthworks made from the air.

The article in which the four airplane pictures were used was prepared for the purpose of showing the great importance of the Cahokia group and of the other related groups to the north, west, and south of Cahokia. The southern group, although many of the units have been destroyed, is of special interest. It is situated near the left bank of the Mississippi, opposite Jefferson Barracks. Bits of pottery, chips of flint, and other traces of a settlement, together with stone-lined graves in the vicinity of the mounds, may indicate the position of a village of one of the Illinois tribes two centuries or more ago.

Mr. B. S. Guha's visit among the Utes and the Navaho at Towoac and Shiprock, respectively, during the summer of 1921 was undertaken primarily with the object of finding any legends or myths about the ancient Cliff Dwellers of

Mesa Verde that might still survive among these people, and incidentally to collect as much material about their social institutions as possible.

Mr. Guha arrived at Towoac on July 14, 1921, and spent a couple of weeks visiting the different camps of the Utes. Among the Wiminuche Utes, unfortunately, there does not appear to survive any legends or myths about the Mesa Verde. All that could be gathered from the oldest living members of the tribe was that when their ancestors first came to the Ute Mountain from the north, the whole region from the La Plata to the Blue Mountains and from Dolores to the San Juan was full of ruins such as now may be seen. They were already abandoned, but there were signs of the cultivation of corn about them.

After leaving Towoac Mr. Guha went to Shiprock, N. Mex., and stayed there until September 5, 1921. Unlike the Utes, the Navaho seem to possess survivals of myths about the ancient Cliff Dwellers of Mesa Verde. How far these legends have any historical background it is difficult to say, but they at any rate suggest some earlier and closer relationship between them and the people who lived in the ruins so liberally strewn over the entire region.

In September, 1921, Mr. John L. Baer, acting curator of American Archeology in the United States National Museum, made an investigation for the bureau of pictographic rocks in the Susquehanna River. In the middle of the river between Bald Friar and Conowingo, Md., are a number of huge boulders of serpentine or gabbro, bearing inscriptions, a few of which have been heretofore described in the Tenth Annual Report of the Bureau of American Ethnology and in Volume CCC (Lancaster County) Second Geological Survey of Pennsylvania. The largest and most important of these pictographic rocks were found to be on Miles' Island at the head of Gray Rock Falls. Large surfaces of these rocks seem to have been polished before the figures were pecked upon them. Pits, grooved lines indicating tally marks, circles with radiating spokes, concentric circles, faces, and fishlike outlines were the prevailing figures observed.

Other groups of rocks between this island and Conowingo showed equally interesting carvings, but not so profusely. A pyramid-shaped rock standing well out in the rough and dangerous rapids had several fish outlines near its apex. A slab which had been broken from its original position and which might have been used for a shad-dipping stand, was marked with outlines of two slender fish and two tally marks. A number of interesting photographs and drawings of these pictographs were secured.

In connection with a reconnoitering trip among the prehistoric quarries and workshops along the Susquehanna in the spring of 1922, Mr. Baer again visited these pictographic rocks and secured additional drawings and a number of plaster casts of the more important figures. Prehistoric steatite quarries were traced from the west side of the river at this point to Deer Creek in Harford County, Md. Those showing most work and offering best opportunities for investigation are near Broad Creek in woodland owned by James McLaughlin, near Robinson's mill, and by W. C. Heaps, Mill Green, Harford County, Md.

At a workshop below Peach Bottom, Lancaster, Pa., a number of unfinished and broken banner stones of prochlorite were found. The source of the material was located a short distance east of Bald Friar, Md. A large number of unfinished banner stones of slate were found at the workshop on Mount Johnson Island above Peach Bottom where so many specimens had already been found. At Fishing Creek, Bare Island and Henry Island evidences were found of considerable camp sites. At New Park and Fawn Grove in York County, Pa., have been found large caches of rhyolite blades. At both of these places and also at Peach Bottom in the same county were many artifacts and indications of burial grounds. Interesting specimens were secured from most of these localities.

EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, assisted by Mrs. Frances S. Nichols. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED

- Thirty-fifth Annual Report. Accompanying paper: Ethnology of the Kwakiutl (Boas). Pts. 1 and 2. 1,481 pp.
- Thirty-sixth Annual Report. Accompanying paper: The Osage Tribe: Rite of the Chiefs; Sayings of the Ancient Men (La Flesche). 604 pp., 23 pls.
- Bulletin 73. Early History of the Creek Indians and their Neighbors (Swanton). 492 pp., 10 pls.
- Bulletin 74. Excavation of a Site at Santiago Ahuizotla, D. F. Mexico (Tozzer). 56 pp., 19 pls.
- Bulletin 75. Northern Ute Music (Densmore). 213 pp., 16 pls.

PUBLICATIONS IN PRESS OR IN PREPARATION

- Thirty-fourth Annual Report. Accompanying paper: A Prehistoric Island Culture Area of America (Fewkes).
- Thirty-seventh Annual Report. Accompanying paper: The Winnebago Tribe (Radin).
- Thirty-eighth Annual Report. Accompanying paper: An introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).
- Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).
- Bulletin 76. Archeological Investigations (Fowke).
- Bulletin 77. Villages of the Algonquian, Siouan, and Caddoan Tribes west of the Mississippi (Bushnell).
- Bulletin 78. Handbook of the Indians of California (Kroeber).
- Bulletin 79. Blood Revenge, War, and Victory Feasts among the Jibaro Indians of Eastern Ecuador (Karsten).
- Bulletin 80. Mandan and Hidatsa Music (Densmore).
- Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon).

DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

Annual reports and separates.....	7, 197
Bulletins and separates.....	6, 403
Contributions to North American Ethnology.....	39
Introductions.....	13
Miscellaneous publications.....	563

14, 215

As compared with the previous year, there was an increase of 1,420 publications distributed. There was a decrease of 57 names in the mailing list.

ILLUSTRATIONS

Mr. De Lancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

Line and color drawings, including maps, diagrams, etc., intended for use as illustrations for publication.....	159
Illustrations, including photographs retouched, mounted, and made ready for engraving.....	1, 282
Illustration proof edited.....	1, 034
Lithographic proof examined at Government Printing Office.	36, 000
Photographic work, negatives of ethnologic and archeologic subjects.....	242
Films developed from field exposures.....	138
Prints for distribution and office use.....	538
Photostat copies.....	1, 987

Mr. Sweeney was detailed for the month of June to prepare 100 or more negatives for the National Zoological Park.

LIBRARY

The reference library continued in the immediate care of Miss Ella Leary, librarian, assisted by Miss Julia S. Atkins and Mr. Samuel H. Miller.

During the year 406 books were accessioned, of which 64 were acquired by purchase, 120 by binding of periodicals, and 142 by gift and exchange. The periodicals currently received number about 900, of which 33 are received by subscription, the remainder being received through exchange. The bureau has also received 159 pamphlets, giving at the close of the year a working library of 24,561 volumes, 14,936 pamphlets, and several thousand unbound periodicals.

In addition to the regular routine of library work, Miss Leary has been able, with the assistance of Miss Atkins, to make rapid progress toward the completion of the new subject catalogue, with the result that about 18,000 catalogue cards have been filed during the fiscal year.

The greatest need of the library is for more shelf room for its publications, due to its growth during the past few years. The library is greatly hampered by this need.

The posting of the monthly bulletin of new publications was continued throughout the year.

During the year many students not connected with the Smithsonian Institution found the library of service in seeking volumes not obtainable in other libraries of the city. The library was used also by the Library of Congress and officers of the executive departments, and out-of-town students have called upon the library for loans during the year. In addition to the use of its own library it was found necessary to draw on the Library of Congress from time to time for the loan of about 400 volumes.

There were bound during the year 200 books, pamphlets, and serial publications.

COLLECTIONS

The following collections, acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

- 66880. Collection of Alaskan ethnologia made by the late Rev. Sheldon Jackson and purchased by the bureau from his daughter, Miss Leslie Jackson.
- 67105. Shell and pottery specimens from Ten Thousand Islands, Florida, collected during the spring of 1921 by Mr. William Dinwiddie, Metuchen, N. J.
- 67112. Four stone objects and two pottery fragments from "Bear" and "Lewis" mounds, near Portsmouth, Ky., collected by Mr. Gerard Fowke during the spring of 1921.
- 67225. Four pieces of pottery and eight pieces of flint, collected by Prof. J. E. Pearce, of Austin, Tex., in eastern Texas during the summer of 1919.
- 67258. Collection of shell objects presented to the bureau by Charles T. Earle, of Palma Sola, Fla., found near Shaws Point, Fla.
- 67274. Collection of archeological objects secured by Dr. J. Walter Fewkes from the Mesa Verde National Park, Colo., in the spring of 1920.
- 67398. Chunkey stone from Rowena, Ky.
- 67451. Archeological objects collected near Austin and at "Burnt Rock" mounds, Texas, by Prof. J. E. Pearce and Dr. J. Walter Fewkes.

67572. Collection of skeletal material secured by Mr. William E. Myer in the vicinity of the junction of Split Rock River and Big Sioux River, S. Dak.
67730. Archeological material collected in 1920 by Mr. W. E. Myer for the Bureau of American Ethnology in Williamson and Davidson Counties, Tenn.
68254. Collection of archeological objects from Rio Grande Valley, N. Mex., turned over to the bureau by Secretary Charles D. Walcott.
68255. Fragments of pottery from Indian burial on the Catawba River, N. C., sent to the bureau by J. Albert Holmes, Construction, N. C.
68256. Collection of Indian implements found on the terraces of Upatoi Creek and Chattahoochee River, Muscogee County, Ga., sent to the bureau of Mr. A. T. Sweet, Columbus, Ga.

PROPERTY

Furniture and office equipment were purchased to the amount of \$134.97.

MISCELLANEOUS

Clerical.—The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Mrs. Frances S. Nichols assisted the editor. Mr. Anthony W. Wilding served as messenger and typist to the chief.

Personnel.—Miss Julia S. Atkins received a permanent appointment as stenographer March 1, 1922.

Dr. T. T. Waterman, who was appointed as temporary ethnologist March 1, 1922, was detached from the bureau roll July 1 for six weeks in order to lecture in the summer school of Columbia University, New York City.

Mr. Samuel H. Miller, messenger boy in the library, resigned June 23, 1922.

Mr. James Mooney, ethnologist, died December 22, 1921. Respectfully submitted.

J. WALTER FEWKES,

Chief, Bureau of American Ethnology.

Dr. CHARLES D. WALCOTT,

Secretary, Smithsonian Institution.

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ANNUAL REPORT
OF THE
BUREAU OF AMERICAN ETHNOLOGY
FOR THE FISCAL YEAR ENDED JUNE 30, 1923

J. WALTER FEWKES, Chief

SIR: In response to your request I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1923, conducted in accordance with the act of Congress approved June 12, 1922. The act referred to contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including the necessary employees and the purchase of necessary books and periodicals, \$44,000.

The chief has endeavored to expend the sum of money allotted in as conservative and economical a manner as possible, although confronted with many difficulties, among which is the increased cost of field work. Since the bureau was first organized expenses for its maintenance have greatly increased, and have doubled within the last 10 years. Several other tendencies of the times have limited the production of results. There has been a great awakening of interest in the treatment of certain Indian tribes by Government officials which has led to a corresponding increase in requests for our publications. Never before was there a greater demand for the published reports and bulletins of the bureau. The epoch-making discoveries in the Valley of the Tombs in Egypt have very greatly increased interest in the science of man and the desire for more accurate knowledge of prehistoric man in America is very keen. News-

papers, magazines, and other periodicals have done much to increase this interest and as may be said with regret many fake discoveries have been foisted on the public. Never before have accurate accounts of Indian life like those published by the Bureau of American Ethnology been more in demand than at the present time.

Several wealthy institutions have been led to give more money to American anthropology. Plans for archeological work in Yucatan and Central America costing many thousands of dollars a year are mentioned in some quarters, and many thousands are annually expended by another institution on pueblo archeology. For lack of adequate funds, the bureau is unable to carry on extensive work of this magnitude and it remains for the bureau to continue its work along the lines already successfully followed: by researches and publication of the results of less ambitious plans. It can not be expected that the quantity of field work with this handicap can be as great as it was when the field was almost untilled, but the chief is striving to keep the quality up to the past. For years to come as the culture of our aborigines fades into the past there will be plenty of work to do in gathering survivals and publishing reports to meet increased demand for authoritative literature on our aborigines. As the work of the bureau calls for increased popularization in the judgment of the chief, the bureau should enlarge the number of popular articles which it publishes from time to time without decreasing strictly technical discoveries. The pages of our reports are full of the records of discoveries which are little known and at present interest only a few persons because of that fact. This should be obviated by putting into published form, suitable for the layman or for students in schools and colleges, the vast stores of knowledge which have been made by the staff of the bureau and its collaborators. The great success of the Handbook of American Indians clearly indicates the desire of the people for popular information on our aborigines and the bureau with an enlarged appropriation would be able to continue work of this nature.

SYSTEMATIC RESEARCHES

In compliance with the act of Congress above mentioned the Bureau of American Ethnology has continued its field and office researches on the American Indians, including the ethnology of the Hawaiian Islands and the inhabitants of Porto Rico and the Virgin Islands. Later in this report is a list of the annual publications. The high cost of printing has somewhat reduced the quantity but the quality has been maintained.

The rapid modification in aboriginal culture perceptible year by year in Indian manners, customs, and languages has led the chief of the bureau to encourage archeological and historical study of the Indians. Extensive researches have been carried on in Colorado, in the Harpeth Valley, Tenn., in the Ozarks, Mo., and on the Atlantic seaboard. In addition to archeological research considerable work has been done on documentary history, especially of the Creeks, Choctaws, and other Muskogean tribes.

Although the bureau has hitherto published many memoirs on the Indians of the northwest coast, there still remains much ethnological work awaiting investigation in this territory. A very promising beginning was made in the study of the totem poles of this region by Dr. T. T. Waterman, a temporary assistant on the staff of the bureau who made a special trip to Alaska for that purpose. He not only collected considerable new material on totem poles but also on legends connected with them.

The intention of the chief is to continue the work thus inaugurated in Alaska, and to repair one of the old Indian villages for educational purposes. The former houses of the Alaska natives are now rapidly going to destruction; Kasaan, one of the largest, was deserted and has been made a national monument but is suffering for want of care. It is proposed to begin cleaning up this village, repair it, in order to minimize the dangers from fire and vandals, and put it in a condition to afford the greatest educational value to future students and tourists.

The first duty of the chief being administrative in nature much of his time is taken up by details of office work, in

which, unless assisted by the members of the bureau, he would be greatly handicapped. The work of answering letters has greatly increased in the last five years, and the demands on the time of those engaged in it have been greatly multiplied. This has affected all members of the staff but it is very satisfactory to record that the letters in reply to inquiries are treated with the greatest respect and are looked upon as authoritative by the recipients.

When in Washington the chief has attended all meetings of the advisory committee on publications and one or two other committees to which he has been appointed. He has likewise accepted the welcome duty of keeping in touch with all the archeological expeditions from different institutions working on ruins in the area of the United States in order that he might intelligently advise action to the secretary on the requests for permits to carry on archeological excavations which each year are increasing in numbers.

The chief has made strenuous efforts to continue his studies of previous summers on the Mesa Verde National Park in cooperation with the National Park Service of the Department of the Interior. In July, August, and a part of September he was absent from Washington and completed the excavation of Pipe Shrine House, a building in the Mummy Lake group of mounds. An account of the initiation of this work appeared in the report for last year. This exceptional ruin was completely repaired and is now open for inspection of visitors.

The excavation and repair of a circular tower situated 300 feet from Far View House also engaged his attention from the middle of July until the close of the season. The mound of stones covering this ruin was known as far back as 1915, but its hidden building was not revealed until the close of June of the summer of 1922, when it was found to be a tower with three subterranean rooms, called kivas, which were evidently used for ceremonial purposes. Around these rooms was formerly a crowded cemetery, of ancient date, which led him to regard the whole area as a necropolis. The number of interments was too large for the number of dwellings. The three kivas belong to the highest type of

these structures characteristic of the Mesa Verde. In one of them there was a well-made wall of secondary construction showing a secondary occupation and ruder masonry. This kiva showed signs of having been abandoned and later reoccupied, but how many years elapsed between the two occupations was not evident from data available.

The excavation of this Mesa Verde tower led to new ideas of the structure and use of these remains, hundreds of which are found scattered in the canyons and on the mesas of the northern tributaries of the upper San Juan River. This tower is a fair example of the type of these buildings. It was probably an outlook for observations of the sun and ceremonies connected with the sky god.

The first type of tower recognized in the Mesa Verde is a simple lookout situated naturally on the summit of a hill or high elevation, but unaccompanied by any other building; the second type has basal rooms which apparently are used for storage of food or possibly for habitation. Far View Tower is classified in a third type in which we have a tower rising from basal subterranean kivas, granaries, and dwellings. The purpose of this type of tower is the same as Pipe Shrine House.

During the greater part of August the tops of the walls of Far View House were covered with cement to protect them from the elements, and it is believed the protected walls will remain upright for several years without further repair. The permanent protection of these open ruins is always difficult and costly, but necessary. There still remain many unsolved problems on the Mesa Verde awaiting attention, but with small appropriations new ruins can not be opened and those already opened can not be repaired.

Some distance north of Far View Tower is the depression long ago christened Mummy Lake. Its true nature is unknown, though it may have been a reservoir; but no mummies have ever been found in its vicinity. In the thick cedars about it, situated on the right hand of the road, there are several small mounds indicating ruins, generally habitations, surrounding kivas. In one of these there are walls made of large stones set on edge, standing above ground.

These stones project 4 feet above the surface and their size has led to the ruin being called Megalithic House. Excavation work on this ruin was begun but not completed before the appropriation was exhausted.

About every other night during the five months the chief worked on the Mesa Verde he gave camp-fire talks to visitors and spent considerable time daily in explaining the significance of the excavations while they were in progress.

In June, 1923, the chief made a trip to Deming, southern New Mexico, and visited different localities, Fort Bayard, Central, Silver City, and Pinos Altos, where pictured food bowls have been found. He purchased a beautiful collection of pottery from the Mimbres Valley, which supplements that already installed in the Museum.

In 1914 the chief first pointed out that the Mimbres Valley, in which this pottery is found, was inhabited in prehistoric times by a people who excelled all other pueblos in painting realistic figures on pottery. The scientific value of these pictures is very great from the fact that the prehistoric dwellers in the Mimbres Valley in this way left a reliable and permanent record of certain occupations (hunting, fishing, gambling), as well as wonderful representations of mythological animals of all varieties. If we could truthfully interpret these figures, our knowledge of the prehistoric mythology of a people of whose history, language, and relationship we know nothing from documentary sources would be greatly increased.

Not far from the close of the fiscal year, President Harding issued a proclamation declaring three groups of towers in southwestern Colorado and southeastern Utah to be a national monument. This announcement was particularly gratifying to the chief, not only because it preserved for future generations good examples of unique types of ancient buildings in our Southwest but also because the idea of the reservation of Hovenweep National Monument originated in the Bureau of American Ethnology. The three groups composing this monument lie within a few miles of each other and are locally called Ruin Canyon group, Holly Canyon group, and the Tejon Mesa group.

During the fiscal year Dr. John R. Swanton, ethnologist, has completed the following manuscripts: "Social Organization and Social Usages of the Indians of the Creek Confederacy"; "Religious Beliefs and Medical Practices of the Creek Indians"; and "A Grammatical Sketch of the Alabama Language."

Doctor Swanton also completed a card catalogue, arranged under stems, of all of the linguistic material contained in the *Arte de la Lengua Timuquana*, by Francisco Pareja, and an English-Indian index for the same; and initiated a report on the stories of the southeastern Indians. By July 1 he had completed translations of stories in the Koasati language and made a beginning on those in Alabama. Material was added to his collection of references bearing on the economic basis of American Indian life, and some map work was done in connection with this phase of Indian life.

The 1st of July, 1923, found Dr. Truman Michelson, ethnologist, at work among the Fox Indians of Iowa. He collected sufficient material for a manuscript entitled "The traditional origin of the Fox Society known as 'They who go about singing' (singing-around rite)." This material will be published in the Fortieth Annual Report of the bureau. A good beginning was also made on the ceremonial "runners" and attendants. Tribal dissensions at Tama cut short Doctor Michelson's stay among the Fox Indians and he made a reconnaissance among the Potawatomi of Wisconsin, the Chippewa at Reserve in the same State, the Ottawa of Michigan, the Delaware-Munsee of lower Canada, and the Montagnais of Lake St. John, returning to Washington near the 1st of October. He definitely determined that there are several different Delaware dialects spoken in Canada and the United States, and that some of these dialects are not clearly related; so that the word Delaware is merely a "catchall" term.

After returning to Washington Doctor Michelson devoted his time to elaborating the paper above mentioned on "The traditional origin of the Fox Society, known as 'The Singing-around rite'," completing it for publication.

About the middle of May Doctor Michelson left for the field to make a reconnaissance of the Algonquian tribes of eastern United States and Canada, including the Labrador Peninsula. His observations lead him to conclude that the aboriginal culture of the Penobscots at Old Town, Me., is disintegrating. None of the young people speak the language, and with the constant intermarrying with whites it will be but a short time when ethnology and folklore, which are both well remembered, will be a thing of the past. The Malecites living at the "village," about 12 miles from Frederickton, New Brunswick, cling tenaciously to the language, which is spoken universally, though practically everyone also has a good command of English. Their ethnology, on the other hand, is fast disappearing. During his short visit with the Penobscots and Malecites, Doctor Michelson determined a number of peculiar morphological traits of the language as compared with central Algonquian. He finds the phonetics of both languages extremely difficult, and on the whole it may be said that neither language is archaic in type. On June 13 Doctor Michelson arrived in Sydney, Cape Breton, Nova Scotia, en route to Labrador.

The beginning of the fiscal year found Mr. John P. Harrington, ethnologist, engaged in the preparation for publication of his recent field notes on the Picurís and Taos tribes of New Mexico and the Mission Indians of California. All the notes on the Taos Indians collected by the late Mrs. M. C. Stevenson were copied and arranged for publication.

Mr. Harrington also prepared for publication a paper entitled "Picurís Children's Stories with Texts and Songs." This manuscript embraces Picurís stories in native text such as are told to the Indian children on winter evenings in their isolated village in northern New Mexico. The stories have high literary quality, and many of them hold the attention of child or adult throughout. The volume is thought to be practical for school use. The 12 songs accompanying the stories are beautifully rendered by Mr. Rosendo Vargas, and are transcribed into musical notation by Miss H. H. Roberts.

Mr. Harrington also prepared an article on "How the World Grew," which is an account of origins corresponding

to the book of Genesis of the Bible obtained from the Mission Indians of California.

Mr. Cipriano Alvarado, a Quiché Indian of the highlands of Guatemala, was brought to this country for the purpose of linguistic study by Mr. William Gates, who kindly allowed Mr. Harrington to obtain from him a large amount of text material in this language. The Quiché is the direct descendant of the tongue of the ancient temple builders of the Central American jungles. In working with Mr. Alvarado with the kymograph, Mr. Harrington discovered that the Quiché and other Mayan dialects possess tones exactly like those of Chinese, and that these tones, as in the latter language, are often the sole means of distinguishing words that are otherwise phonetically identical. Work was also done with Mr. Alvarado and Mr. Gates on the pallophotophone, a machine recently invented by Professor Hoxie, of the General Electric Co. The pallophotophone proved of the greatest value for the study of tones in Indian and other languages, and its reproduction of the voice is true for all the sounds, even including s, h, and those of like timbre which are imperfectly rendered on the phonograph.

On May 3 Mr. Harrington proceeded to Santa Barbara, Calif., for the purpose of continuing his researches on the Indians of that State. He succeeded in finding good informants for Indian songs as well as stories and place names and obtained a large quantity of manuscript material. This material consists of myths, place names, historical notes, accounts of early life and customs, genealogies, and Indian songs.

The Bureau of American Ethnology is doing cooperative work with the Museum of the American Indian, Heye Foundation, of New York City, which obtained permission from the Hotel Ambassador Corporation to excavate the famous Burton Mound on the beach at Santa Barbara. This mound has always been known as the site of the principal rancheria of the Santa Barbara Indians, but former owners of the property refused permission to excavate it, and when the Potter Hotel was erected in 1901 hope of archeological investigation seemed forever lost. The site

was unexpectedly made again available for study on account of the burning of the hotel a few years ago.

The excavations began early in May and the Indian cemetery was located on the slope of the mound toward the beach. The graves that were opened were crowded with human bodies, trinkets, and a great variety of utensils. Among the specimens are a fragment of a soapstone canoe, soapstone pipes, fishhooks of abalone and bone, sinker stones, arrowheads of great variety, spear heads, about 40 mortar pestles, including some very long ones, beads of many kinds, pendants, daggers, bowls and kettles of soapstone, native paint, etc.

Mr. Harrington has prepared for publication during the fiscal year approximately 1,900 pages of manuscript.

Mr. J. N. B. Hewitt, ethnologist, completed during the fiscal year the second part of his Iroquoian Cosmology, the first part having appeared in the Twenty-first Annual Report of the bureau.

During the year Mr. Hewitt spent some time editing a manuscript entitled "Report on the Indian Tribes of the Upper Missouri," by Mr. Edwin Thompson Denig, to the Hon. Isaac Stevens, Governor of Washington Territory in 1854 (?), which has been submitted for publication.

Mr. Hewitt devoted much time and research in the preparation of data for official replies to correspondents of the bureau. These inquiries in their scope touch almost the entire range of human interest, very often seeking information quite outside of the specific field of research belonging to this bureau. About 100 such replies were prepared, although some of them required more than a day's work in preparation.

Mr. Hewitt also acted as the representative of the Smithsonian Institution on the United States Board of Geographic Names.

On May 18, 1923, Mr. Hewitt left Washington on field duty. His destination was the Grand River Grant to the Six Nations of Iroquois dwelling near Brantford, Ontario, Canada. At this place Mr. Hewitt made an intensive study and revision and fuller interpretation of his voluminous texts—texts which he had recorded so fortunately in previous

visits to this place. These texts embody the traditions of the founding of the League or Confederation of the Five Tribes of the Iroquois in the closing decades of the sixteenth century. They contain also the principles and laws upon which it was established, as well as the complete rituals and chants of the Council of Condolence and Installation of the Federal Government, and full explanations of the intricate political relationships of the kindreds composing the tribal members of the league.

He was also fortunate in recovering enough data relating to the Federal and tribal chieftainesses to enable him to affirm the former existence of a set of official names for every one of these women magistrates. He also recorded much valuable information relating to the several institutions of the league.

On June 24 Mr. Hewitt made a short visit to the Onondaga Reservation, lying about 8 miles south of Syracuse, N. Y. He devoted his time on this reservation to a comparison of the limited knowledge possessed by the only two men who had any definite information of the various institutions and laws and installation rituals of the Iroquois Confederation, with the records which he possesses. The object was to ascertain, if still possible, how much of his Canadian material, if any, could be said to be recent, or whether the differences in the content were due merely to the breakdown of the traditions of the New York Onondaga. He convinced himself that the latter was the sole cause.

Mr. Francis La Flesche, ethnologist, was engaged most of the time during the fiscal year in assembling his notes for the third volume of his work on The Osage Tribe. In this volume are recorded two rituals of the Osage tribal rites. One is entitled Wa-xo'-be A-wa-thoⁿ, Singing of the Wa-xo'-be Songs, and the other, Ça Tha-çe Ga-xe, Weaving of the Rush.

SPECIAL RESEARCHES

In her studies of Indian music during the fiscal year Miss Frances Densmore had included the songs of three tribes living in Arizona, near the Mexican border. These tribes are

the Yuma, Mohave, and Papago. One of the manuscripts submitted this year deals with the cremation ceremony of the Yuma, witnessed by Miss Densmore in 1922. The ceremonial songs of this rite were recorded and information given by the oldest man, who has the hereditary right to sing these songs. It is the custom of the Yuma Indians to hold a memorial ceremony within a year after a death, at which an image of the deceased is burned. After this ceremony the name of the dead is never spoken. A full description of this ceremony was submitted, together with transcriptions of its songs.

The treatment of the sick by these tribes was also studied and healing songs of each tribe were submitted. Among these were the songs of a Yuma medicine man, who claims the power to cure persons suffering from wounds in the chest, accompanied by hemorrhage. This shaman said that he did this by the aid of four insects and birds, one of which has power over the fluids of the body. His songs are cheerful and soothing in character, and it is interesting to note that he forbade the people to weep during his treatment, requiring that they "appear cheerful and act in a natural manner."

Four manuscripts were submitted by Miss Densmore during the year, bearing the following titles: "Papago Medicine and Dancing Songs," "Dream and War Songs of the Papago Indians," "Cremation and Memorial Ceremonies of the Yuma Indians, with Related Songs," and "Lightning and Medicine Songs of the Yuma and Mohave Indians." This material comprised 93 pages of manuscript and 84 transcriptions of songs, together with the original phonographic records and tabulated and descriptive analyses of the songs. The two most interesting musical discoveries made in this work are the presence in these tribes of songs which may be termed "pure melody without tonality," and the independent and elaborate rhythm of the accompanying instrument, either a gourd rattle or a basket drum. In many instances the accompanying instrument is transcribed separately from the melody in order to show its peculiarities.

During the summer of 1922 Miss Densmore visited the Chippewa reservations at Lac Court Oreilles, Wis., and

Leech Lake and Mille Lac, Minn., collecting additional specimens of plants used in treating the sick, and other data.

In the spring of 1923 Mr. W. E. Myer, special archeologist, spent several months investigating archeological remains in central Tennessee. He visited the ancient mound group of the Banks Link farm on Duck River, in Humphreys County, Tenn., where was found the celebrated cache of fine, long flint blades and other flint objects now the pride of the collection of the Missouri Historical Society. He made a map of this group and obtained additional information in regard to these masterpieces of the ancient flint chipper's art.

Through the active aid of several citizens of Lincoln County he was enabled to visit and study an important and hitherto undescribed mound group on Elk River, at the junction of Lincoln, Moore, and Franklin Counties. He also obtained the definite location of over 75 unrecorded sites on which ancient man had lived in Lincoln County.

He explored a small burial mound and other vestiges of an ancient Indian village on the lands of Mr. L. W. Denny, Goodlettsville, Davidson County, Tenn., where he found 20 skeletons. There was evidence that two different tribes had occupied this site at separate times in the past, and the mound yielded a number of fine artifacts which throw light on the life of the people.

Mr. Myer spent two months exploring the remains of a great prehistoric fortified Indian town in Cheatham County, Tenn., known as the Great Mound Group on account of its great central mound. With the assistance of Mr. Wilbur Nelson, State geologist of Tennessee, an excellent topographical map was made, and through the repeated efforts of Lieut. Norman McEwen, of the 136th Air Squadron, Tennessee National Guard, some good airplane photographs of the mound on the Harpeth River, near Kingston Springs, were secured.

These remains cover approximately 500 acres in two bends of the river. In one bend he found a bold projecting hill which had been artificially shaped from bottom to top. Three wide terraces had been formed along the side of this hill. The original rounded summit had been leveled until

a great plaza or public square, about 1,000 feet in length and 500 feet in breadth, had been formed. Upon the sides of this level plaza one very large mound and two smaller ones had been erected. This section of the ancient town was protected on the water side by the perpendicular cliffs of the Harpeth River. On the land side it was defended by an earthen embankment or breastworks surmounted by a wooden wall, from which at intervals semicircular wooden towers projected. These earthen breastworks, which had formerly supported this wooden wall, were still to be found in the undisturbed woodlands, where they yet extend about $1\frac{1}{4}$ miles, and there is evidence that they originally ran much farther. Wooden palisades, consisting of small tree trunks, had been driven into the ground side by side and wedged together and the soil thrown against them until they were by this means firmly embedded in these earthen embankments or breastworks. These palisades, bound closely together and strongly braced, formed a wooden wall which had been plastered on the outside in order to make scaling by an enemy difficult. Earthen bastions projecting beyond this line of wall at intervals of about 150 yards were still to be found. These had formerly supported the semicircular wooden towers. The enemy advancing to attack was therefore subjected to fire from the defenders through portholes along the main wall and also to a flanking fire from the warriors in the towers on these bastions. Faint traces of some of the timbers of these palisades and wooden towers were found in the soil of these embankments.

While the great central mound and terraced hill formed the most striking feature of this ancient town, there were in the inclosure four other eminences whose summits had likewise been leveled into plazas. All these plazas yielded traces of earth lodges and other evidences of former buildings. The earth lodges of the common people were situated on the edges of the terraces. The larger mounds had probably supported important public buildings and the lodges of leading personages. This grouping of important buildings around five separate plazas and in different parts of the town very probably indicates that the population was made

up of what had once been four or five separate autonomous groups of kindred peoples. Here in their later home each group had gathered around their own public square in their own section of the town and thus preserved at least some of their old ceremonials and held together in some fashion their old organization.

It is impossible to determine even approximately the number of inhabitants, but the large number of the buildings and the long extent of the walls indicate a population of several thousand. All the buildings whose traces were uncovered appear to have been burned. Below the fallen-in wall of an important building the charred remains of the woven reed tapestry which had formerly hung upon the wall were secured for the National Museum.

It is not as yet possible to determine the age of these remains. Beyond all question this town had been destroyed long before the coming of the whites. No object of white man's manufacture was found on this site.

Mr. Gerard Fowke carried on archeological investigations in the Stratman Cave in Maries County, Mo. This cave, which is situated a little more than 2 miles south of Gasconady, the point at which the Rock Island Railroad crosses Gasconade River, has an opening on the side of a hill about 150 feet high. The approach to the cave on the river side is very steep, but from the top of the hill it is less difficult. Mr. Fowke opened a trench on the outside slope of the talus at a point 30 feet from the entrance of the cave and 16 feet below the floor level. He found most of the evidences of human occupation in superficial black earth, scattered throughout which from bottom to top were fragments of pottery, parts of vessels of varying capacity and thickness; chert knives or spearheads, none highly finished; hundreds of thousands of mussel shells more or less decayed; and other objects so abundantly found on the numerous camp sites and village sites along the Gasconade River. The artifacts were few in number and scattered throughout the mass, nowhere more than a few pieces in a cubic foot of earth. This denotes temporary occupation, at irregular intervals, over a long period of time. Yet the cave was not altogether

merely a resort for temporary hunters or war parties. In addition to the pottery, which shows at least occasional sojourning in the cave, there were fragmentary bones, too fragile to preserve, of a child 2 or 3 years old, of another somewhat older, and a small adult, possibly a woman. These bones were found in different places but near the surface; there were no other indications of burials. The only specimens found worthy of note were a small hammer made of a chert twin concretion and bearing evidence of long service; a pebble, used for sharpening small bone implements and for smoothing leather or rawhide strings; and a double concave discoidal with V-shaped margin.

While the results of the work at Stratman Cave contributed little to the antiquity of man in Missouri, Mr. Fowke's studies, which are accompanied by a small collection, are valuable in a comparative way. The Ozark region in Missouri is yielding many surprises to the archeologist and it is believed that there still remains much field work to be done here and in the neighborhood before the character and antiquity of the Indians of that region are definitely determined.

With a small appropriation Mr. John L. Baer carried on instructive field studies on the banner stones in the Susquehanna River region, and was able to make a good series reaching from the imperfect form into the more symmetrical objects. He also investigated the pictographs found near Delta, Pa.

EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, editor, assisted by Mrs. Frances S. Nichols, editorial assistant. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED

Thirty-fourth Annual Report. Accompanying paper: A Prehistoric Island Culture Area of America (Fewkes). 281 pp., 120 pls., 69 figs.

Thirty-seventh Annual Report. Accompanying paper: The Winnebago Tribe (Radin). 560 pp., 58 pls., 38 figs.

Bulletin 76. Archeological Investigations (Fowke). 204 pp., 45 pls., 37 figs.

Bulletin 77. Villages of the Algonquian, Siouan, and Caddoan Tribes west of the Mississippi (Bushnell). 211 pp., 55 pls., 12 figs.

PUBLICATIONS IN PRESS OR IN PREPARATION

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).

Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox Indian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society known as "Those Who Worship the Little Spotted Buffalo"; The Traditional Origin of the Fox Society known as "The Singing-Around Rite" (Michelson).

Bulletin 78. Handbook of the Indians of California (Kroeber).

Bulletin 79. Blood Revenge, War, and Victory Feasts among the Jibaro Indians of Eastern Ecuador (Karsten).

Bulletin 80. Mandan and Hidatsa Music (Densmore).

Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon).

DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

Annual reports and separates.....	5,363
Bulletins and separates.....	11,787
Contributions to North American Ethnology.....	10
Introductions.....	3
Miscellaneous publications.....	531
	<hr/>
	17,694

As compared with the fiscal year ending June 30, 1922, there was an increase of 3,479 publications distributed.

ILLUSTRATIONS

Mr. DeLancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of this work follows:

Drawings for publications.....	32
Photographs retouched for engraving.....	78
Illustration copy made ready for engraving.....	319
Illustrative proof edited.....	302
Editions of colored plates examined at Government Printing Office.....	160, 000
Negatives prepared.....	232
Films developed from field exposures.....	240
Prints for distribution and office use.....	1, 117

In November of last year Mr. Gill began to reclassify the large collection of ethnologic and archeologic negatives with a view of preparing a comprehensive catalogue of the linguistic families and tribes with such historic data as is available. He has made good progress in this work. About 5,000 negatives have already been catalogued.

LIBRARY

The reference library continued under the immediate care of Miss Ella Leary, librarian, assisted by Mr. Roderick McPherson and later by Mr. Thomas Blackwell.

During the year 500 books were accessioned. Of these 70 were acquired by purchase, 130 by gift and exchange, and 300 by binding of periodicals. The current periodicals annually received number about 925, of which 35 are by subscription, the remainder being obtained through exchange. The bureau has also received 200 pamphlets. The aggregate number of volumes in the library at the close of the year was 25,061; of pamphlets about 15,100. Satisfactory progress was made toward the completion of the new subject catalogue from the old imperfect author's catalogue.

The most pressing need which confronts the library is shelving for the ever increasing accumulations of books. Extensive shiftings and readjustments have been necessary during the year in order to make space available where it is most needed, but the library is totally lacking in facilities to allow for its expansion.

COLLECTIONS

The following collections, acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

69367. Archeological objects from Alaska collected by Dr. T. T. Waterman in the spring of 1922. (5 specimens.)
69530. Stone collar from Mayaguez, Porto Rico.
69660. Two incense burners found in a cave in southern Yucatan and presented to the bureau by Maj. E. H. Ropes, United States Army.
69881. Archeological specimens collected along the Susquehanna River (Maryland and Pennsylvania) in October, 1922, by John L. Baer. (174 specimens.)
69885. Two stone pestles from the Isles of Pines.

MISCELLANEOUS

Clerical.—The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Mr. Anthony W. Wilding served as messenger and typist to the chief.

Mr. Roderick McPherson, messenger in the library, resigned March 31, 1923, and Mr. Thomas Blackwell, minor clerk, was appointed May 1 to fill the vacancy.

Respectfully submitted.

J. WALTER FEWKES,

Chief, Bureau of American Ethnology.

Dr. CHARLES D. WALCOTT,

Secretary, Smithsonian Institution.

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ANNUAL REPORT
OF THE
BUREAU OF AMERICAN ETHNOLOGY

FOR THE FISCAL YEAR ENDED JUNE 30, 1924

J. WALTER FEWKES, Chief

SIR: I have the honor to submit the following report on the researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ending June 30, 1924. These were conducted in accordance with the act of Congress approved June 12, 1923, which contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archeologic remains, under the direction of the Smithsonian Institution, including the necessary employees and the purchase of necessary books and periodicals, \$44,000.

The Bureau of American Ethnology was founded by Maj. J. W. Powell and placed under the direction of the Secretary of the Smithsonian Institution by act of Congress. This bureau is devoted to the increase of knowledge of the American Indian, as well as of the natives of Hawaii and the aborigines of Porto Rico. It follows the ideal of the Smithsonian Institution as applied to researches on the American Indians, including all branches of their archeology and ethnology. The bureau publishes annual reports and bulletins, the whole number of these thus far published being 40 reports and 81 bulletins. The former assume the form of memoirs, often large and highly technical; the latter are generally smaller in size, often preliminary in character.

The fundamental idea which led to this appropriation was the recognized necessity for reliable information for a proper appreciation of the Indian, as an aid to legislation. Very

extravagant and diametrically opposite opinions were rife regarding the character of our aborigines. In the early days of contact of the European and Indian races erroneous romantic ideas were largely prevalent, but with the application of the science of anthropology new values of Indian character developed. The Indian in some quarters was regarded solely as an object of research; the humanitarian side was lost sight of, and the fact that he is a man belonging to one of the most important races in the ultimate amalgamation of the different peoples was overlooked. The aim of the Bureau of American Ethnology is to discover and to disseminate correct ideas of the Indian as a race, that our people may better understand and appreciate his history, language, sociology, music, religion, and various arts and industries. It is obligatory for the bureau to preserve accurate records of customs indigenous to America that are rapidly being lost in the settlement of the former homes of the Indians by members of the white race. The value of this material will increase in coming years, for the records that are now being made are final and in many cases will be the sole objective information that posterity will have of the Indian and his customs. This work is imperative, for within the past few decades a great deal of information of this kind has disappeared unrecorded, and the probability is that this generation will witness the death of most aboriginal survivals in culture.

While the ideal of the bureau is the acquisition of knowledge and the publication of the same through reports, there has grown up a great deal of work on related subjects that absorbs more or less of the time of the chief and his staff. Information is sought from all quarters regarding the Indians, and urgent calls from State institutions and universities asking for advice and help in local problems have been more numerous than at any other time in the history of the institution. Routine office work has assumed in the past ten years a larger relative proportion than in former decades. Various agencies have quickened interest in the problems considered by the Bureau of American Ethnology. The great increase in travel resulting from the development of the

automobile and the foundation of national parks has intensified the desire to "see America first." Our parks and Indian reservations have been visited in the past few years by an ever increasing number of travelers. This has stimulated a demand on the part of the general public for accurate information on the history and customs of the Indians, which the bureau endeavors to supply.

It can not be expected, when the office work has grown to such magnitude and the appropriations have remained practically the same as they were before the war, that the quantity of research in the field can equal that of former years, but the chief has endeavored to have as many of the staff in the field as he can and to publish the reports of their work as rapidly as feasible. It is self-evident that the acquisition of knowledge regarding the Indians, even if not published, is a most valuable asset, notwithstanding the fact that it must be stored in the archives to await a more favorable time for publication.

SYSTEMATIC RESEARCHES

The first duty of the chief being administrative and his time for a large part of the year being occupied with routine matters, he does not have much opportunity for field work, but notwithstanding this fact scientific work of a limited nature has been done by him in the field. He has kept en rapport with the work of all archeological expeditions in the Southwest in order to be able to advise you in regard to your recommendations for archeological work on the public domain. The number of expeditions in the Southwest has tripled or quadrupled in the last decade.

The field work engaged in by the chief during the past year was archeological in nature, in cooperation with Mr. E. M. Elliott and his associates, of St. Petersburg, Fla. There are few areas in the United States which promise more to the archeologist than southwestern Florida along the shore from Tampa Bay to Cape Sable. Perhaps no one has added more to our knowledge of this area than Mr. F. H. Cushing, a former ethnologist of the bureau. The problems of southern Florida demand more objective material than we have from

the Everglades and the Ten Thousand Islands, where numerous proofs of a vanished population are in evidence in the form of enormous shell heaps and earth mounds.

The chief began his researches on Weeden Island, near St. Petersburg, which is situated at the end of Gandy Bridge, an artificial causeway crossing Tampa Bay. The evidences of prehistoric aboriginal life on Weeden Island are numerous large shell heaps and sand heaps which may be divided into groups or types, as kitchen middens, observatories, foundations of houses, and burial places. Evidently there was formerly a large village near the highest point of the island. One of the mounds which was chosen for excavation turned out to be a cemetery, and in the course of the winter about one-half of it was excavated. The work extended from November until March, inclusive.

The chief was not able to be in St. Petersburg the whole winter, but after having started the work in November, 1923, he returned to Washington, assigning the direction of the excavations to Mr. Stanley Hedberg and later to Mr. M. W. Stirling, of the National Museum, who continued the work until the chief's return in February. As a result of the excavation a large collection of aboriginal objects was brought to the United States National Museum. This collection contains many unique specimens and will later be permanently installed in the Museum upon completion of a report on it. No specimens had formerly been excavated at Weeden Island and the unique results of this work are regarded as most important. A preliminary report has been published in the Smithsonian Miscellaneous Collections, vol. 76, No. 13.

At the present time it is too early to draw final conclusions from the above work, but it is intended to continue excavations in Florida in the winter of 1924. Many of the specimens found were not very different from those characteristic of the west coast of Florida, but the number of objects is greater and their variations so extensive that they are thought to indicate a high development of the aboriginal culture in southern Florida. Evidences of two distinct cultures, one above the other, were determined from the

excavations in the Weeden mound. The lower contained crude pottery, very few implements, mostly of shell, all having a considerable likeness to the so-called archaic Antillean culture of Cuba. The upper layer contained very fine specimens of decorated pottery in great numbers, showing close relationship to the ceramics of Georgia. This indicates an extension southward or a drift of population, possibly allied to the Muskogean, into the peninsula. The relationship of the people of the lower layer was Antillean rather than Muskogean. The inhabitants of southern Florida, when the earliest burials were made in the Weeden mound, probably belonged to an unknown tribe. The artifacts in the upper layer may be remains of the Caloosa tribe, which was found there when Tampa Bay was visited by Ponce de Leon. The Indians that now inhabit the Everglades—the Seminoles—are a late introduction into Florida and of Creek descent. The numerous Florida shell heaps antedated their advent by several centuries.

The chief has actively worked during the past year for the formation of a new national monument on the Little Colorado, near Flagstaff, Ariz. This monument has been temporarily named the Wupatki National Monument and includes ruins at the Black Falls of the Little Colorado, first described by him in 1900. It is to be hoped that before another report this most interesting group of stone buildings will be added to the other archeological monuments. The ruins that comprise it have some of the best preserved walls in the Southwest.

The impression exists in some quarters that the work of the Bureau of American Ethnology must be completed in a certain definite time. This impression has no real foundation, for ethnology is like any other scientific study and has no limitations. Every new year of work in the bureau enlarges the horizon of research and presents new problems regarding the American Indians for solution. Since the foundation of the bureau by the late Maj. J. W. Powell the aims and tendencies of the science of ethnology have greatly enlarged, and the published studies of the staff have put the science of anthropology upon such a firm

foundation that not only the past appropriations but also the prospective expenditures by Congress are more than justified. The earlier work covered a limited scope; it pointed out the field for future work. It now remains for the comparative ethnologist to connect the various problems of man and his culture and to shed new light on what still remains unsolved. By law the ethnological research of the staff of the bureau is limited to the American Indians and the aborigines of Hawaii. The logical outcome is the enlargement of the Bureau of American Ethnology into a bureau devoted to the study of all races.

Even in studying the Indians there are great regions of South America which are practically unknown to the ethnologist. South America, next to Central America, contains examples of probably the highest culture that has ever been attained by the American race. I refer, of course, to the civilization of the great empire of the Incas, extending from the Isthmus of Panama to southern Chile. In this prolific field the bureau has done comparatively little, and the time is now ripe for an extensive exploration in that field. No less important in South America is the area inhabited by wild tribes, such as the Matto Grosso and other regions east of the mountains. The remarkable similarity of the culture of the Indians in Argentina and that of the Pueblos especially pleads for more thorough investigation of the former area. The great valley of the Amazon, that has attracted the ethnologist since the wonderful voyage of Alex. Von Humboldt at the beginning of the last century, still holds out new problems.

The bureau will soon issue a remarkably complete work by Dr. Walter E. Roth on British Guiana, which probably will be one of the finest it has ever published. It adds much to our knowledge, but no more important fact than the magnitude of the numerous fields remaining to be investigated in northern South America. The languages, sociology, religion, arts, history, and archeology of almost every country in South America demand research. Here we have a great continent awaiting the student of the antiquity and cultural relationship of the American race.

In the same way the field of Central America and Mexico now awaits the investigator, although in that particular area the bureau has made some very important contributions.

There remain special problems of secondary nature throughout the continent that are as yet unanswered which would be within the scope of the bureau's work. All ethnological work on the South American Indians should have very great influence in uniting more firmly the republics of Spanish origin and the United States.

Of the many problems awaiting investigation, one of the more important is the plotting of the trails by which communication was carried on between Indian tribes. These trails historically followed by roads and railroads now serve the growing habit of the automobile and the desire of Americans to see their own country. A study of the foods used by the Indians has a practical value which can not be overestimated. The number of plants used by the Indians far outnumbers those on our own table, and the bureau might well give attention to the discovery of new food resources.

It is desirable to increase the archeological work of the bureau which thus far has attracted a great deal of attention and which is one of the foremost departments of anthropological study. This study should be extended to Florida and the coast States with a view to determining the relationship of the antiquities of North and Central America. The investigation of the southwestern portion of Texas and the adjoining State of New Mexico should be exploited, especially the contents of the new national monument near Carlsbad which contains important archeological material. One important problem is to follow the extension northward of the Huastec culture along the shores of Tamaulipas and Texas to our southern mound builders.

During the fiscal year Dr. John R. Swanton, ethnologist, completed the translations of stories from his Koasati, Alabama, Hitchiti, Natchez, and Creek texts, and added to them the stories obtained only in English and those in the Tuggle collection; he provided these stories with footnotes referring to similar tales among other tribes, and prepared

an introduction for the whole. In addition to this work he has edited and largely recast a manuscript on Indian trails by the late Mr. W. E. Myer. Also, with the assistance of Miss Atkins, he has begun incorporating into an alphabetical card index all words in the Timucua language contained in the religious works of the Franciscan missionaries Pareja and Movilla—nearly all that is left to us of this old Florida tongue. Nearly one-third of the work has been completed.

On the 1st of July, 1923, Dr. Truman Michelson, ethnologist, was on board the *Sagona* en route to Labrador. He reached the Northwest River on July 4, where he found a few Nascapi Indians, one from Davis Inlet, besides the ordinary Montagnais Indians of the vicinity. From his work among these Indians it follows that the language of the Nascapi and Davis Inlet Indians is the same, and that instead of being a wholly distinct language it is nothing but a Montagnais dialect. Furthermore, it is abundantly clear that the dialects of the above-named Indians form a distinct unit as compared to the Montagnais dialects of Lake St. John and Lake Mistassini, as well as the so-called Cree of Rupert's House and the East Main River, which really are not Cree at all but Montagnais dialects. The report of some Indians to the west of the Nascapi speaking a language unintelligible to them is worth investigating at a later date. It may be noted that the folklore of the Indians of Labrador contains more elements occurring among Central Algonquians than has been suspected. The very simple social organization of the Labrador Indians makes it very probable that the rather complex organizations of the Central Algonquians are unoriginal and are due both directly and indirectly to the influence of non-Algonquian tribes. He was able to measure only a few of the Indians at the Northwest River, so it is not possible to state precisely which physical type they represent.

At the conclusion of his work he returned to Rigolet and left on July 22 for St. Johns, Newfoundland. En route he was able to take the measurements of a few Eskimos. On his arrival at St. Johns he proceeded by steamer and train for Tama, Iowa, to renew his researches among the Fox

Indians. He devoted especial attention to the ceremonial runners of these Indians, and in the course of the winter submitted a manuscript on them for publication by the bureau. Further, a number of Fox texts were translated and other ethnological data obtained. Doctor Michelson returned to Washington near the close of September. He made another trip among the Foxes in May and returned to Washington toward the end of June. During this trip he obtained new data on Fox ceremonials.

By joint arrangement with the Museum of the American Indian, Heye Foundation, the bureau undertook in the summer of 1923 the excavation of the Burton Mound at Santa Barbara, Calif., which was the chief village of the Santa Barbara Indians and without question the most important archeological site on the southern California coast. Mr. J. P. Harrington, ethnologist of the bureau, was detailed to take charge of the exploration of the mound and the work was commenced early in May, 1923, and continued throughout the summer and fall. The first day's work revealed the location of the cemetery, just where old Indians had stated that it was situated. During several months of careful stratigraphical excavation many facts of interest for the prehistory of the Santa Barbara Indians and the early culture of the Pacific coast in general were recorded.

The principal rancheria or village of the ancient Santa Barbara Valley was not at the mission, where the Indians were later gathered, but at the beach. It was situated just west of the mouth of Mission Creek, where a landing cove for canoes and two low mounds, one by the beach and a larger one 650 feet inland and now known as the Burton Mound, afforded unusual attraction as a dwelling place for Indians. At a number of places in the locality were sulphur springs; also springs of good drinking water. The name of the village was Syujtun, meaning "where the trail splits." There a thriving population of some 500 Indians lived on the wild food products of the neighboring shore and sea and of the Santa Barbara Valley, rich in acorn-bearing oaks and game animals.

The inhabitants of Syujtun remained unmolested until the establishment of the Santa Barbara Mission in 1786. After this the native villagers were gradually removed to the adobe cuarteles of the mission, 2 miles distant, and the desolated beach was known as "el puerto de Santa Barbara" or as "el rancho de la playa." After the confiscation of the mission lands the ownership of the beach ranch passed into private hands. During the forties the owner was none other than Capt. George C. Nidever, known in California history as the rescuer of the last surviving Indian woman from San Nicolas Island. Captain Nidever sold the property in 1851 to Augustus F. Hinchman, whose daughter, Miss Stella F. Hinchman, has furnished valuable data about the history and traditions of the mound. In 1860 Mr. Hinchman sold the tract in turn to Lewis T. Burton, who made it his home for 19 years and after whom the mound has been called in more recent times. None of the early owners had allowed excavation on the property and with erection of the Potter Hotel on top of the mound in 1901 all hope of archeological investigation was lost. This hotel burned to the ground on April 19, 1921, and the old village site was thereby again released for archeological investigation.

The results of this excavation of the Indian town of Santa Barbara proved rich and interesting beyond expectation. The graves that were opened were crowded with human bodies, trinkets, and a great variety of utensils. Among the rarest specimens are the largest soapstone canoe ever discovered in California, a wooden awl such as is described by the early historians, and a number of objects of problematical use. There are soapstone pipes, fishhooks of abalone and bone, sinker stones, arrowheads of great variety, spearheads, about 140 fine mortars, pestles, including some very long ones, beads of many kinds, pendants, daggers, bowls and kettles of soapstone, including some of the largest ever found, native paints, etc. About 300 skeletons were taken out, among them some very ancient skeletons from the coquina or reef-rock layer. These are

now in the hands of Dr. Bruno Oetteking, of the Museum of the American Indian, who is preparing an elaborate report on them

At the close of January, Mr. Harrington returned to Washington and has since then been engaged in the preparation of his report on the Burton Mound

Mr. J. N. B. Hewitt, ethnologist, was engaged for the greater part of the year in office work. This consisted chiefly in the historical analysis of the large mass of material in native text relating to the formation and structure and import of the League or Confederation of the Five Iroquois Tribes or Nations. He was also occupied in the translation of the farewell address of Deganawida, a founder of the confederation, into literary English. In this address Deganawida briefly summarizes the scope and import of the institutions and the laws of the league; herein, with the masterful hand of a prophet-statesman, he also graphically recapitulated the work accomplished by the several co-working founders.

Mr. Hewitt also translated from the Onondaga text the laws first recognizing the extant institution of chieftainess in uterine kindreds and then adopting it for the purpose of making it fundamental among the institutions of the League of the Iroquois, the laws defining the duties, rights, and obligations of the incumbent of such office and carefully prescribing the method by which a woman should be nominated by the mothers of her own uterine kindred, the method by which the choice should be confirmed, first by her own, and then by sister, and then by cousin clans, and then finally how this candidate should be installed at a federal council of condolence and installation. These laws also prescribe the method by which such chieftainess can, for cause, be deposed and a successor nominated and installed as prescribed by these laws; and they also prescribe the method of nominating and installing the male aid to the chieftainess, who must be a warrior and an orator to fulfill his adjuvant duties

As a member of the United States Geographic Board, representing thereon the Bureau of American Ethnology,

Smithsonian Institution, Mr. Hewitt has attended all regular and special meetings of the board, with a single exception. As custodian of manuscripts of the Bureau of American Ethnology, Mr. Hewitt reports that more than 250 items were withdrawn and consulted by the various collaborators of the bureau and by other students.

In past years, in studying the social and political institutions of the Iroquoian peoples, especially of the Five (latterly Six) Nations or Tribes, Mr. Hewitt has spent a number of field seasons in carefully collecting and recording in native texts from the best available leaders, chieftains, chieftainesses, ritualists, and ceremonialists, chiefly in the Mohawk, Onondaga, and Cayuga dialects, extensive material and data concerning the principles, the laws, decrees, and ordinances of the instituting councils, the set rituals, the prescribed chants, and the ceremonial addresses, which together defined the functioning apparatus of the great commonwealth, commonly called the League or Confederation of the Iroquois. Mr. Hewitt has undertaken to subject, so far as possible, this text material to a careful literary and historical analysis and also to a thorough grammatic and lexical criticism, in order to restore, as far as the evidence thus secured will warrant, these rituals and chants and set addresses to the earlier forms which were probably used when the League of the Iroquois was instituted in the closing decades of the sixteenth century. This work is necessarily tedious and slow but is of supreme necessity. The results thus far are highly gratifying.

In June, 1924, Mr. Hewitt visited the Six Nations of Iroquois dwelling near Brantford, Ontario, Canada; the Onondaga dwelling near Syracuse, N. Y.; the Tonawanda dwelling near Akron, N. Y.; the Tuscarora dwelling near Sanborn, N. Y. His object on this trip was to obtain a better knowledge of the music of the ritual chants of the Condolence and Installation Council. He also secured a quantity of purple wampum which is used in these league rituals and which has now become so scarce that its cost is well-nigh prohibitive.

Mr. Hewitt was also able to secure from the very few persons who still retain some definite knowledge of the prin-

ciples and institutions of the league additional interpretative and confirmatory information concerning certain critical passages in the native texts which he recorded in former field trips.

Mr. Francis La Flesche, ethnologist, gave most of his time to the assembling of his notes on the child-naming rites and ceremonies of the Osage Indians. These ancient rites, with their ceremonies, are now practically obsolete, and it was fortunate that Mr. La Flesche succeeded in securing two of the remaining versions. The first was obtained from Wa-xthi'-zhi, a member of the Iⁿ-gtho^{n'}-ga or Puma gens. This version will form the first part of the volume on this subject.

The other version is that used by the Tsi'-zhu Wa-shta-ge, Peacemaker, gens. It was with considerable difficulty obtained from old Sho^{n'}-ge-moⁿ⁻ⁱⁿ, a member of the gens, who was very conservative and opposed to having any of the tribal rites go to strangers. Since the recording of these ancient rites that had been transmitted through many generations, both these No^{n'}-hoⁿ-zhiⁿ-ga, Wa-xthi'-zhi and Sho^{n'}-ge-moⁿ⁻ⁱⁿ, have died, and it is now doubtful if any member of the tribe could be found who is able to recite the rituals and go through the ceremonial forms in their entirety.

Tsi'-zhu Wa-shta-ge version will form the second part of the volume, now nearing completion, which is to be called "Osage Child Naming Rites."

Mr. W. E. Myer, special archeologist, on his return from field work in Tennessee, took up the preparation of his report on the remains of the great prehistoric Indian settlement known as the Great Mound Group in Cheatham County, Tenn., a preliminary account of which was given in last year's report. This town is situated on the Harpeth River near Kingston Springs and is found in two clusters about a mile apart in the bend of the Harpeth River, covering about 500 acres. The fortification of the Great Mound Group was one of the finest prehistoric structures for defense made by the Indians of Tennessee.

Nearly all the lower river bend, called the "Mound Bottom" by the local people, contains evidences of walls, many of which have disappeared by long cultivation of the soil.

Mr. Myer was not able to determine the age of these mounds, but buildings which they represent were undoubtedly destroyed before the coming of the white people.

One of the most interesting results of the summer's work was the excavation of a small mound on the Denny farm at Goodlettsville, Sumner County, Tenn., the relics from this mound showing that the inhabitants of this site belonged to a culture quite unlike that of much of the surrounding region in the valley of the Cumberland.

Mr. Myer also made studies in the southern part of Tennessee in Lincoln and Moore Counties and made a map of a hitherto undescribed mound group on Elk River.

SPECIAL RESEARCHES

During the summer of 1923 Miss Frances Densmore visited the Makah Indians at Neah Bay, Wash., and recorded their songs. Neah Bay is near the end of Cape Flattery, but the coast is so mountainous that it is reached only by boat. At the time of Miss Densmore's visit there was only one passenger boat a week to this village. The principal industry of the Indians is salmon fishing. The purpose of this trip was to observe the music of Indians who live beside the ocean and to compare the music with that of tribes living on the mountains, plains, and desert. As a result of the comparison it was found that the music of the Makah resembles that of the Ute, Papago, and Yuma more than it resembles that of the Chippewa, Sioux, and Pawnee. This is general observation, the detailed comparison being unfinished. Three instances are as follows: (1) The Makah Indians use a "high drone," or sustained tone held by two or three women's voices, while the others sing the melody. This was heard among the Papago in southern Arizona and is found in certain parts of Asia. This suggests a cultural evidence that the Indians migrated from Asia and down the Pacific coast, the use of the drone being more pronounced among the Makah than among the Papago; (2) the Makah Indians have a considerable number of "nonharmonic" songs to which the term "key" can not properly be applied. These were found in southern Arizona

but not in the plains region; (3) the Makah songs concerning the whale are marked by a very small compass and small intervals. The Ute songs concerning the bear are also characterized by small intervals, but the compass is not particularly small. The Makah songs recorded were of several classes, including songs of the whale legends and whaling expeditions, songs of the potlatch and various social dances, songs connected with contests of physical strength, "gratitude songs," which were sung by individuals at feasts, lullabies for children, courting songs, and the songs of wedding festivities.

Dances and gatherings of the tribe were attended; numerous specimens illustrating the culture of the people were collected; the singers and environment were photographed; and about 30 specimens of plants were collected, with a description of their economic uses.

While in Washington, D. C., Miss Densmore arranged in a catalogue list 368 songs awaiting publication, and arranged in the proper order for publication all her material on Pawnee, Papago, Yuma, Cocopa, and Mohave music. Four manuscripts were submitted during the year, with the titles "Cocopa and Mohave Dance Songs," "Dance Songs and Flute Music of the Yuma," "Whaling Songs, Dream Songs, and Legend Songs of the Makah," and "Potlatch Songs of the Makah." These comprised, in addition to the text, 87 songs, with phonograph records, musical transcriptions, and analyses.

EDITORIAL WORK AND PUBLICATIONS

The editing of the publications of the bureau was continued through the year by Mr. Stanley Searles, editor, assisted by Mrs. Frances S. Nichols, editorial assistant. The status of the publications is presented in the following summary:

PUBLICATIONS ISSUED

- Bulletin 79. Blood Revenge, War, and Victory Feasts Among the Jibaro Indians of Eastern Ecuador (Karsten). viii, 94 pp., 10 pls.
Bulletin 80. Mandan and Hidatsa Music (Densmore). xx, 192 pp., 19 pls., 6 figs.

Bulletin 81. Excavations in the Chama Valley, New Mexico (Jeancon).
ix, 80 pp., 65 pls., 38 figs.

List of publications of the Bureau of American Ethnology. 45 pp.

PUBLICATIONS IN PRESS OR IN PREPARATION

Thirty-eighth Annual Report. Accompanying paper: An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians (Roth).

Thirty-ninth Annual Report. Accompanying paper: The Osage Tribe: The Rite of Vigil (La Flesche).

Fortieth Annual Report. Accompanying papers: The Mythical Origin of the White Buffalo Dance of the Fox Indians; The Autobiography of a Fox Indian Woman; Notes on Fox Mortuary Customs and Beliefs; Notes on the Fox Society Known as "Those Who Worship the Little Spotted Buffalo"; the Traditional Origin of the Fox Society Known as "The Singing Around Rite" (Michelson)

Forty-first Annual Report. Accompanying paper: Salish Basketry (Boas).

Forty-second Annual Report. Accompanying paper: Social Organization and Social Usages of the Indians of the Creek Confederacy (Swanton).

Bulletin 78. Handbook of the Indians of California (Kroeber).

DISTRIBUTION OF PUBLICATIONS

The distribution of publications has been continued under the immediate charge of Miss Helen Munroe, assisted by Miss Emma B. Powers. Publications were distributed as follows:

Report volumes and separates.....	2, 058
Bulletins and separates.....	11, 384
Contributions to North American ethnology.....	10
Miscellaneous publications.....	511
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	13, 963

As compared with the fiscal year ending June 30, 1923, there was a decrease of 3,731 publications distributed, due to the fact that no report volumes were issued during the year, whereas two reports were published in the preceding fiscal year.

ILLUSTRATIONS

Mr. DeLancey Gill, illustrator, with the assistance of Mr. Albert E. Sweeney, continued the preparation of the illustrations of the bureau. A summary of the work follows:

Drawings for publications.....	138
Photographic prints retouched for engraving.....	85
Negatives prepared.....	372
Films developed and printed from field exposures (rolls).....	24
Photographic prints for distribution and office use.....	733

The work of reclassification of negatives has progressed satisfactorily. As a prelude to a new catalogue of the large collection of negatives, this work will be of lasting value. About 4,000 negatives were identified and rejacketed, but much yet remains to be done.

LIBRARY

The reference library continued under the immediate care of Miss Ella Leary, librarian, assisted by Mr. Thomas Blackwell.

During the year 560 books were accessioned. Of these 82 were acquired by purchase, 253 by gift and exchange, and 225 by binding of periodicals. The current periodicals annually received number about 975, of which 37 are by subscription, the remainder being received through exchange. The library has also received 225 pamphlets. The aggregate number of books in the library at the close of the year was 25,621; of pamphlets, about 15,325.

During the year many students not connected with the Smithsonian Institution have applied to the library for books. The library was used also by the Library of Congress and officers of the executive departments, and out-of-town students have made use of the library through frequent loans.

Conditions of crowding on the bookshelves are now acute in many places in the stacks. Many volumes received by the library not pertaining to anthropology were transferred to the library of the Smithsonian Institution.

COLLECTIONS

The following collections, purchased or acquired by members of the bureau or by those detailed in connection with its researches, have been transferred to the United States National Museum:

70367. Collection of about 90 specimens of picture pottery from the Mimbres Valley, N. Mex.

70553. Blanket on which is woven an elaborate representation of the Yeibichi dance of the Navaho Indians, presented to the bureau by Mr. Chee Dodge, St. Michael's, Ariz.
71026. Collection of archeological specimens made by the late John L. Baer during the summer of 1923 in the Susquehanna Valley region.
71278. California Mission Indian water basket collected by J. P. Harrington during the summer of 1922.
71347. Collection of archeological specimens secured in Tennessee and South Dakota by the late William E. Myer.
71430. Collection of archeological specimens from Pipe Shrine House in the Mesa Verde National Park, Colo.
71614. Collection of Indian implements and fossil animals found in Garrard County, Ky., along the Old Wilderness Trail, and presented to the bureau by Mrs. S. H. Burnside.
71691. Four prehistoric objects presented to the bureau, through the late W. E. Myer, by J. G. Braecklein.
71692. Three separate lots of stone implements from prehistoric village sites near Goodlettsville, Tenn., presented to the bureau through the late W. E. Myer, by a Mr. Meadow, John Bell Cartwright, and Capt. James Roscoe.
71694. Three lots of archeological specimens presented to the bureau, through the late W. E. Myer, by C. O. Chapman, A. B. Moore, Mrs. Lee Colin, and A. T. Sweet.
71697. Collection of archeological specimens from the Painted Kiva House, Mesa Verde National Park, Colo.

PROPERTY

Furniture and office equipment were purchased to the amount of \$76.29.

MISCELLANEOUS

The correspondence and other clerical work of the office has been conducted by Miss May S. Clark, clerk to the chief. Miss Julia S. Atkins, stenographer and typewriter, assisted the various members of the staff. Mr. Anthony W. Wilding, typist, has been engaged in copying manuscripts and in various duties connected with the office of the chief.

Mr. W. E. Myer, special archeologist, died December 2, 1923.

Respectfully submitted.

J. WALTER FEWKES, *Chief*.

Dr. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

ACCOMPANYING PAPERS

COILED BASKETRY IN BRITISH COLUMBIA AND
SURROUNDING REGION

BY

H. K. HAEBERLIN†, JAMES A. TEIT†, and HELEN H. ROBERTS

Under the direction of
•

FRANZ BOAS

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PREFACE

The work contained in the following pages is the result of an inquiry planned by me many years ago. The problem that I set myself was an investigation into the attitude of the individual artist toward his work. Much has been written on the origin and history of design without any attempt to study the artist himself. It seemed to me necessary to approach the problem from this angle.

For many years I collaborated with Mr. James A. Teit, who seemed eminently fitted to carry through such an investigation, because he was not only on terms of intimate friendship with the Thompson Indians of British Columbia but because, furthermore, he had full command of the language of that tribe, one of the groups most prolific in the making of decorated basketry. The peculiar technique of imbrication, which has a limited distribution and a sharp localization of pattern type, seemed to make the research particularly promising.

The keen interest of Mr. Homer F. Sargent, of Pasadena, Calif., in the work of Mr. Teit, and his thorough appreciation of the importance of ethnological work, made it possible to conduct an extensive undertaking in this area, which was financed entirely through Mr. Sargent's liberality.

A singular misfortune has hung over this investigation. I was unable to visit the field myself and I sent Dr. Herman K. Haeberlin to Mr. Teit to start the research and to discuss with Mr. Teit the essential points that seemed to deserve consideration. After his return, Doctor Haeberlin continued his inquiry by a critical study of the decorations of baskets found in museums and private collections. While these investigations were in progress Doctor Haeberlin succumbed to an insidious disease, leaving his work incomplete.

At the same time Mr. Teit was engrossed, for a time, in work undertaken for the welfare of the Indians of British Columbia, work which took up much of his time. Before he could resume his ethnological work consecutively he became ill and died without completing his notes.

Under these conditions and on account of other work, not being able myself to complete the inquiry, I handed all the notes and illustrations to Miss Helen H. Roberts, who wrote the text of the present memoir, using such parts of Mr. Teit's and Doctor Haeberlin's manuscripts as were completed. She is largely responsible for the arrangement of the material and the method of presentation.

To add to all the other misfortunes, and due to an oversight, the plates accompanying the volume were rearranged without knowledge of the author and museum numbers of specimens were removed, so that identification of the illustrations was in many cases impossible. In consequence it has been necessary to omit certain discussions, because the specimens to which they refer could not be identified. I have attempted to rearrange the illustrations but in part of them disorder still remains and I must ask the indulgence of the reader for the apparent lack of system in the presentation of the illustrative material. It seems more important to present all rather than to limit to figures that are in proper order.

A summary of the results of the inquiry, as I see them, will be found at the end of the paper.

FRANZ BOAS.

EXPLANATION OF SYMBOLS

Vowels have their continental values.

ê open e, as in "fell."

ô open o, nearly as in German "voll."

ɛ obscure vowel, as e in "flower."

tl affricative.

ɬ voiceless l.

q velar k.

c English sh.

Mr. Teit uses the period (.) to indicate in some cases a glottal stop, in others strong voicing.

His distinctions between velars and midpalatals and between ɬ and tl are uncertain. The variability of vowels reflects an actual individual variability.

The sound zr, zʳ seems to represent a cerebral z.

A.M.N.H., American Museum of Natural History, New York, N. Y.

U.S.N.M., United States National Museum, Washington, D. C.

H.M.A.I., Museum of American Indian, Heye Foundation.

U.P.M., Museum of the University of Pennsylvania.





Lillooet. Showing a head design



A. H. DEN & CO. BALTIMORE

Thompson. A. M. N. H. 16-4611. Design: "Butterfly cut off," "Butterfly wings" (Spuzzum, Uta'mqt),
"Butterfly" (Lytton), "Arrowhead" (Coldwater, Thompson)

COILED BASKETRY IN BRITISH COLUMBIA AND SURROUNDING REGION

By H. K. HAEBERLIN, JAMES A. TEIT, and HELEN H. ROBERTS,
under the direction of FRANZ BOAS

INTRODUCTION

All of the interior Salish tribes of British Columbia¹ once made coiled basketry of cedar or spruce root—the Upper and Lower Lillooet, the Upper and Lower Thompson, the Shuswap, the Lake (of the Okanagan group), and the Okanagan proper. The last were the least productive. The Lake and Okanagan as well as the Shuswap make almost no coiled baskets at the present time, but the Lillooet and Thompson probably manufacture as many now as they ever did. Of the Athapascan group of southern British Columbia, the Chilcotin are the only people who make coiled ware. The Tahltan and Nahani declare that they never made any, and the same is said of the Stuwí'-xamux^u, who once inhabited the valleys of the Nicola and Similkameen. Less is known about the Sekani and Carriers. Father Morice does not mention the industry. Harmon refers to some kind of water-tight basketry having been made in his day at Stuarts Lake, in the Carrier country. The northern Shuswap say that the Carriers never made coiled ware so far as they know, so probably the variety mentioned was manufactured in another technique. On the coast only the Sechelt, Squamish, Stalo or Lower Fraser, the Nootsak, the tribes east of Puget Sound, and the Cowlitz, all of whom live not far from the Lillooet and Thompson and their southern neighbors, make coiled baskets, of which they produce no small amount at the present day. The interior people say that although these tribes had access to the very best basket material in their own country none of them made coiled ware in old times but learned from the Thompson and Lillooet. The Stalo, and later the Nootsak, learned from the Lower Thompson Indians. The latter believe that they were taught by hunting bands who sometimes wintered with them and by some Thompson women who married into their tribe. Probably their adoption of the art took place about the beginning of the nineteenth century. The theory that the Stalo acquired their knowledge from the Lower Thompson seems to be confirmed by a study of their designs, which are not only the same but are arranged in a similar manner. Where interpretations of designs are available, they prove

¹ For distribution of tribes see map at end of volume.

to be practically identical with those of the Utā'mqt (Lower Thompson).^{1a} Form, material, and technique are the same, except that the Stalo show coast influence by creating a greater proportion of box shapes, and also prefer fancy shapes. The Stalo say that the Yale band and their neighbors adopted the craft many generations ago and that until recently it was largely confined to them. Gradually the fashion spread toward the sea, but so slowly that even at the present day the people living near the water do not make baskets.

Thompson influence in basketry prevails as far down Fraser River as Agassiz and Chilliwack. At Harrison and below, Lillooet influence predominates. Formerly little basket work was attempted near Chilliwack, but intermarriage and increased acquaintance with the Lower Thompson tribes have given an impetus to the art. Among the people of this region, however, as elsewhere, Utā'mqt women and their daughters who have settled there are considered as experts. The same is true of the Nootsak. Among the Squamish and Sechelt there are strong traces of Lillooet styles, which may be accounted for by the fact that these tribes intermarried and traded with one another. It is claimed that a small band of Lillooet settled among the coast people, and that their descendants continued to speak the mother tongue until a few years ago. In technique, shapes, and designs, as well as method of ornamentation, the baskets of this region are essentially of Lillooet style. Some of the old members of the latter tribe state that the coast people adopted their art.

From the foregoing it seems that the direction of diffusion of the art in British Columbia was from the interior toward the sea. The fact that a similar transmission does not seem to have occurred from the Chilcotin to the Bella Coola is in part, at least, accounted for by the statement of the former, substantiated by information from the Shuswap and Lillooet, that the Chilcotin bands living nearest to the Bella Coola did not manufacture baskets. The Lillooet of the Lakes state that some Chilcotin learned the art from them, but if this ever occurred the latter have thoroughly transformed the style. This is not the case among other tribes that are known to have derived the art from the Lillooet, for in these cases the similarity in styles is very marked. It is impossible to say at this late date whether or not Chilcotin basketry resembled that of the ancient Shuswap.

Present information indicates that the interior Salish were the leading manufacturers of coiled and imbricated basketry in the northwest and that the Athapaskan people were only slightly engaged in its production, and where so occupied were always in close contact with the Salish.

The Willapa say that formerly they did not make coiled work, which agrees with the statements of their immediate neighbors. They adopted the fashion from the Cowlitz at a rather late period.

^{1a} A recently received vocabulary suggests that the name is Utā'mkt, "down river."

The Casca also did not make it, nor the people of Nicola valley, the Tahltan, Carrier, or Sekani who were mentioned before. The Chilcotin may have acquired the art from the Shuswap.

The interior Salish were not the only people, however, who produced coiled work in the early days. They state that the Snake, Nez Percé, and some Kootenai knew the technique, but not the Blackfeet, who formerly bought their baskets from the Flathead and Tunā'xe. Most of the more eastern Salish tribes ceased to make coiled baskets about the time when buffalo hunting expeditions enjoyed so much popularity.

Very little investigation has been conducted among the Lower Kootenai, although it is known that they made baskets.

The neighboring Lake tribes and the Kalispel believe that the Kootenai learned the art from them, but they are not sure of this. Since the Upper Kootenai did not make baskets as far as is known, the claim seems quite probable. It is said that Lower Kootenai baskets were inferior and few in number.

Sapwood or flat coils are mostly used by the Lillooet and adjoining coast tribes, among whom the round coil seems to have been little employed, if at all. Mr. Teit has not noticed any specimens so constructed. Where Thompson influence counts for anything, as on the Lower Fraser, the flat coil is very unpopular except for constructing the bottoms of baby carriers. Elsewhere, except in the tribes mentioned, it is not used at all.

Square shapes seem to prevail in regions where the sapwood or flat coils are popular. Water-tight receptacles can not be manufactured in these materials and presumably for this reason Lillooet kettles and water baskets were always made of round coils. Since this consideration would be of little importance to the coast tribes who employed wooden boxes for those purposes, and the basket with them was of use only for transporting loads, this would account not only for their nonacquaintance with the round coil but also for the comparatively few basket forms which they manufactured, which were all of angular shape.

It is worthy of note that the Chilcotin use only one shape of basket, namely, the typical burden form. This is much more rounded in outline, constructed of round coils, and water-tight, and so quite well adapted for almost any purpose, including the boiling of food. This use of a single shape may indicate that it was originally borrowed from tribes who were more practiced artisans, particularly as the Chilcotin have never become masters of some technical difficulties, among which the most conspicuous are those of producing even coils and straight, smooth walls.

Information on coiling among the Sahaptin and Upper Chinook is somewhat meager, but some data regarding them were procured from

their northern and western neighbors as well as from the Klickitat themselves. There are no data concerning the Tai'xnapam (Tyigh), who live south of the Columbia River.

It is not clear whether coiled work was produced by the Sahaptin in former times. The Klickitat say that according to earliest tradition they themselves and the Tai'xnapam made coiled baskets, but tradition deals only with comparatively recent times. According to them the Wishram and Wasco were not basket makers, the Yakima did not make many, while the development of the industry among the Wallawalla, Umatilla, Palouse, Cayuse, and Nez Percé is in doubt. They secured coiled ware through trade. A somewhat conflicting statement is made by the Flatheads, who are of the opinion that the Nez Percé formerly manufactured coiled baskets.

All² the tribes of western Washington, with the possible exception of the Makah, now make coiled and imbricated basketry. Long ago it was not produced by the Makah, Quileute, Chemakum, Queets, Quinault, Humptulips, Satsop, Songish, Upper and Lower Chehalis, Semiahmoo, Lower Fraser, Chinook, Upper and Lower Willapa, Clallam and Lummi. The last two tribes have been engaged in the industry for a long time, but the others took it up only in recent years, the Quinault, Queets, and Quileute as late as 1890. According to information received in this section of the country, the Nisqualli and allied tribes, including the Snohomish and Skagit, the Twana, Upper Chehalis, Cowlitz, and the Sahaptin tribes of Wanukt, Taitnapam, and Klickitat, have practiced the art as far back as can be remembered. A few informants assert that the Cowlitz were the most expert craftsmen, but they were certainly equaled by some of the Twana and Nisqualli.

From this information, as well as from that derived from other localities, it would appear that the original home of this type of coiled work lay in the Cascade region. The Salish antedated the other tribes in the manufacture, having produced the ware before the arrival of the Klickitat west of the Cascades, a statement which is confirmed by the distribution of the industry.

Had it first been introduced by the Sahaptin a distribution west as well as north might have been expected, with the Cowlitz as a center. The Chinook, Willapa, Satsop, and Lower Chehalis would then in all likelihood have acquired the art as soon as the Snohomish, for instance; but the reverse appears to have been the case, for even the Lummi and Clallam have been long established as craftsmen. Possibly a study of the basket names would reveal the location of the first center of the art in western Washington. Wherever coiled basketry was produced in this part of the country it seems to have

² The information given in this paragraph may be incomplete, but it was all that could be obtained by Mr. Teit.

been invariably imbricated. None of the tribes in western Washington are known to have made the plain baskets, as did the Salish in the eastern part of the State. Apparently, as each tribe learned to coil, it learned to imbricate also.

A Spuzzum man confirmed this last statement. In speaking of former times he said that he had seen baskets made by several tribes east and west of the Cascades in Washington. Some were approximately of the same shape as the burden baskets of the Thompson and of medium size. Baskets of this shape were common among all people living near the mountains as far south as the Nisqualli, and were owned by the Nootsak, Skagit, and Snohomish. The informant did not know where these were made, except that the Nootsak produced some. He had heard that they learned the art from the Thompson, but he could not be sure of this. He described some Wenatchi specimens as being more like Klickitat, high in proportion to their width and without much flare. On all the coiled baskets he noted there was beading and imbrication quite like that employed by the Thompson.

According to the Cowlitz and the Nisqualli, the Klickitat, when they came into their country, found the other tribes of the region well versed in basket making. They say that the Klickitat formerly resembled the Yakima in that they did not make baskets but were obliged to pay high prices for those which they purchased. Only when they learned the art from the Cowlitz and Nisqualli were they able to manufacture plenty for their own use.

The work of the Klickitat is reported to have always been coarser and poorer than that of the surrounding tribes. The Nootsak say that long ago a few women of their tribe made baskets. They think the Thompson or Skagit taught them about the beginning of the nineteenth century. Among the Nisqualli and other tribes of that group coiling was the only technique known, but the Twana produced soft twined baskets in almost as great numbers as the "hard" coiled ware.

All the coiled ware of the region was constructed of cedar roots. Those made of spruce roots were known and used by some tribes but they were everywhere considered to be inferior, and, since cedar was abundant, it was generally chosen.

Information regarding the shapes of the baskets, the material employed in imbrication, the designs and design names, is very incomplete for this area.

The ordinary burden basket seems to have resembled that of the Thompson except that it was slightly rounder and less flaring. Oblong receptacles with rounded corners were used for storage, while perfectly cylindrical shapes served as kettles. The present high, narrow, conical form constructed by the Klickitat is reported to be modern.

The tribes of the Flathead group, the Flathead, Coeur d'Alène and Lake, describe all of their old baskets as round, some of them having convex bases, others being flat. The Coeur d'Alène made a number of shapes. Among these were the bottomless mortar such as was used by the Sahaptin and southern groups and the small elongated form similar to the old Thompson "trunk," which was used for storage purposes. The Lake tribe also manufactured a number of shapes. These were (1) a burden basket similar to the Thompson but less angular; (2) the cylindrical "pail" with flat base; (3) a small cup; (4) a form with flaring walls like the Thompson kettle; (5) a "nut" shape with small mouth; (6) a large size with more extended orifice; and (7) a long, low form like the small Thompson trunk.

The Columbia tribe report having had baskets shaped like the Thompson burden basket—less rectangular although not round. After the introduction of the horse, the higher, more circular Klickitat shape with a small bottom came into common use because it was considered as being better adapted for packing on the backs of horses. The Columbia tribe had the kettle and nut shapes, while trays were probably made by many tribes, especially the Sanpoil and Colville.

Other types of technique.—Most of the tribes were acquainted with types of technique other than coiling; twined baskets, plain or twilled, plaited and wickerwork were used. Usually split cedar twigs, strips of cedar bark, slats of vine maple or cedar sap, spruce root, basket grass, and the young shoots and leaves of the bulrush furnished the materials for these types. No birch-bark vessels were made in any part of western Washington and of the coast region, but temporary receptacles of rough construction fashioned from a single piece of bark were used by all the tribes, and were quite similar to those employed by the Salish and Sahaptin tribes.

The Thompson wove mats similar to those of the coast Indians. For making nets, threads were twisted from the bark of *Apocynum cannabinum*. They had a wooden netting stick for sizing the meshes which were secured with a double knot.

Bags, woven of bark, grass, or rushes, were in general use, as well as occasional specimens woven of wool or hair.

In the woven bags the warp threads were composed of a two-strand twine made of bark fiber. The bags were woven in simple twilled two-ply twine. In other words, the technique consisted of twining two woof elements about each other as they passed before and behind pairs of warp strings. Each successive row of twining divided the warp pairs of the previous round so that new pairs were formed composed of one warp string from each of two adjacent groups.

In weaving the bags were held upside down and woven from bottom to rim. The bags were widened where necessary by the

insertion of additional warp strands, not, however, in regular order. At the rim their loose ends were sewed into a strip of buckskin for a finish.

Wallets were also manufactured in this kind of weaving and were decorated with designs in false embroidery or by weaving colored grasses or bark twine into the fabric. The bags are somewhat coarser than those made by the Klickitat, from whom it is probable that the Thompson learned to make them.

The well-known grass caps of the Nez Percé type which were worn by the women were once in vogue among the Nisqualli and allied tribes as far north as the Snoqualmi, the Upper Chehalis, Cowlitz, Wishram, Wasco, Upper Chinook, Wanukt, Taitnapam, Klickitat, Yakima, Umatilla, Wallawalla, Cayuse, Palouse, Nez Percé, Columbia, Thompson (according to information obtained from the Okanagon), Okanagon, Sanpoil, Spokane, Colville, Coeur d'Alène, Kalispel, Lake, Pend d'Oreille, Flathead, and probably among some bands of the Shoshoni and tribes farther south in what is now Oregon—the Klamath, for instance. Not all of these tribes manufactured them, however. The chief producers were all the Sahaptin tribes, the Wasco, Wishram, Cayuse, Columbia, Sanpoil, Spokane, and the Coeur d'Alène. It is doubtful if the Colville made any, and the Cowlitz made them only rarely. Information is lacking for tribes who lived to the south of the Sahaptin, and from the distribution as indicated it would appear that the Sahaptin were the introducers.

Caps of other species of grass than that used in the regions just discussed, and woven in a different way, were manufactured by tribes who were situated farthest from the Sahaptin center, but no further information about these has been gathered.

IMBRICATION

British Columbia.—Beading and imbrication were both employed as a means of decorating the basket surface by all the British Columbia tribes which made coiled baskets, but, on the whole, less by the people living to the east. The home of imbrication seems to have been somewhere in the Cascade region, from where it was carried long distances north, south, and east, but not far to the west.

Sahaptin tribes.—When the Yakima and Klickitat learned to manufacture coiled ware they also learned to imbricate it. The principal materials employed in imbrication appear to have been cedar bark dyed red with alder, yellow with Oregon grape root, and black by burying in mud; grass, in its natural white color or dyed in the same way as cedar bark, and the black bark of a sedge growing along the streams were also used.

The designs were almost entirely geometric and resemble those seen among the Klickitat.

Western Washington.—In this region imbrication came in at a comparatively late date when the technique of coiling was learned.

Eastern Washington and Idaho.—Among the extreme eastern Salish groups imbrication was not practiced, but it did extend into the Coeur d'Alène country. Among these people, and over the whole intervening area between them and the Columbia, which includes the Lake and the Lower Kootenai, some imbrication occurred, but the majority of baskets were undecorated.

The Sanpoil and Nespelim say that they learned to imbricate about the time that the first white men entered their country, and because of this, some of their people think that it was taught to them by Europeans.

The Flathead say that their baskets were unimbricated. The Okanagon adopted imbrication about the time of the arrival of the whites. The Lake tribes manufactured mostly plain baskets, but ornamented some with imbrication in grass or bark which was colored black or left white. Most of the products of the Kootenai were plain, as were about half of those of the Coeur d'Alène. The Columbia used imbrication to a much larger extent than the other groups just mentioned.

The materials used were basket grass, natural or dyed (the latter was usually the case with the Coeur d'Alène), cedar bark, natural or dyed, willow bark, and rarely that of the cherry. The colors were black, white, red, brown, and yellow. The designs were geometric, apparently.

For the purpose of summarizing the above discussion the following list is given of the distribution of imbrication among the Flathead and allied groups. It also indicates which of the tribes produced numerous shapes.

IMBRICATION

Coeur d'Alène.....	Imbricated about one-half of their output (introduced about the middle of the eighteenth century).
Lake ³	Imbricated about one-half of their output.
Columbia.....	Imbricated the majority of their output.
Wenatchi.....	Imbricated the majority of their output.
Flathead.....	Had no imbrication.
Sanpoil and Colville.....	Formerly none; have imbricated during the last century.
Okanagon.....	Formerly none; have imbricated during the last century.

³ The Lake tribe mostly used grass for imbricating.

SHAPES

Coeur d'Alène.....	Had six or seven shapes.
Lake.....	Had six or seven shapes.
Columbia.....	Had several shapes.
Wenatchi.....	Had several shapes.
Sanpoil ⁴	Had several shapes.
Flathead.....	Shapes all circular with small rounded or wide flat bottoms.

From what has so far been said it seems that the same general conditions existed south of the Canadian boundary line as were found north of it; that is, the basketry art flourished in the Cascades where material was plentiful and the people lived more or less sedentary lives. It spread only slowly toward the coast, and never attained the same degree of prominence to the east where the climate was drier and materials were scarce. In the latter direction the people were in contact with Plains culture, and the buffalo hunt as well as the introduction of the horse altered the early habits of the people, who abandoned the basket-making industry and bought their baskets with hides. They were in contact with the Europeans earlier than the tribes to the west; and when metal utensils were introduced these were soon substituted for baskets, except for those used in berrying. Bags, however, were still useful in traveling and continued to be made even after the people settled on the reservations. This was true of the Coeur d'Alène, who only a century previous had made many baskets.

All of this information strengthens previous indications that the Salish tribes as a whole made coiled baskets from the earliest known times, although since 1850 most of them have practically discontinued the industry. It also shows that imbrication was confined originally to the western part of the country near the Cascades, along the Columbia River and north, but that about the beginning of the nineteenth century it spread eastward. It seems never to have extended as far as the Kalispel, Pend d'Oreille, and Flathead, a fact which would indicate its comparatively recent adoption by the tribes immediately west of them. Mr. Teit believed, however, that the Coeur d'Alène had it. It also appears that the old rounded, elongated burden basket was widely spread among practically all of the tribes. The only tribes not using this shape now or formerly in the area under discussion are the Yakima and Klickitat, a fact which may add weight to the tradition of an invasion by these and other Sahaptin tribes into the territory formerly occupied by the Salish, thus dividing the Thompson-Columbia area from the Nisqualli-Cowlitz. The theory that the southernmost tribes may have adopted the distinctive shape used by

⁴ Sanpoil and Colville made trays.

them from the coast, not from tribes to the northeast (from whom they are at present separated by the Yakima-Klickitat), is hardly tenable, since the coast people who make coiled basketry are very irregularly distributed, and seem to have derived their ideas from the tribes living immediately east of them. Moreover, the chief trade routes and consequently the natural paths for the dissemination of culture in the interior lay mostly east and west, not north and south.

Angular shapes belong to the northwestern part of the area. The square-mouthed type of the Wenatchi is different from the others, and resembles birch-bark baskets.

There is a difference in the construction of basket rims made by the northern and southern Cascade tribes. Among the Klickitat, Cowlitz, and Nisqualli, as well as among the Wenatchi, the false braid rim is the usual finish. Such rims are seldom made by the Thompson, Lillooet, Chilcotin, and neighboring tribes, who prefer plain over-and-over stitching. Information on this point for the eastern Salish is lacking. The Columbia and Spokane used both varieties.

Loopwork rims were made by all the Cascade people except the Chilcotin and coast tribes of British Columbia. They were found among the Lillooet, Thompson, Wenatchi, Columbia, and Klickitat east of the mountains, and the Cowlitz, Nisqualli, and Stalo to the west. They were also applied to twined baskets by the Snohomish and other coast tribes of Washington.

COILED BASKET MAKING AMONG THE THOMPSON BANDS ⁵

The Thompson are at the present time, and probably were in the past, the most prolific producers of coiled imbricated basketry of all the tribes comprising the Salish group, where it is supposed that the art had its origin.

Since specimens of their work have been so abundant, thereby affording excellent material for study, the bulk of this work has been based upon Thompson data, most of which were collected by Mr. James A. Teit, who made his home among that tribe for many years.

To a large extent the manufacture seems to have depended on the location in which the people made their homes, as well as upon their other occupations, which were more or less controlled by the conditions under which they lived. Certain parts of the country, as, for instance, the Cascade region, enjoy a comparatively moist climate, which produces dense forest growth. Owing to the proximity of good salmon streams and their custom of living largely on fish, the people were somewhat sedentary in their habits, and because food was plentiful they had leisure not only in which to manufacture baskets for the immediate needs of the household but to develop for these an artistic decoration which satisfied their love of the beautiful. Materials of the best quality for these purposes grew in abundance right at hand.

Somewhat similar conditions prevailed in the country of the Coeur d'Alène, who manufactured many baskets in early times. However, as will be seen in the course of our discussions, unfavorable environment does not prevent the manufacture of baskets. On the other hand, data from other parts of the world prove that an abundance of material and ample leisure in which to develop an art do not always succeed in producing it.

In the more arid and sparsely wooded sections basketry materials were scarce and of inferior quality and had to be sought far off in the mountains or obtained by barter. The people depended less on fish for a livelihood and were more nomadic in their habits. In such regions bags, which were perhaps better adapted for travel, together with bark vessels of a more or less temporary nature, were often used in place of baskets.

⁵ For information already published on the basketry of the region, see Teit, "The Thompson Indians of British Columbia," pp. 187-188; Teit, "The Lillooet Indians," pp. 205-209; Teit, "The Shuswap," pp. 487-488; and appendix to this, "Notes on the Chilcotin Indians," pp. 765-774, all in *Jesup N. Pac. Exp.*, vol. II; Farrand, "Basketry Designs of the Salish Indians," *Jesup N. Pac. Exp.*, vol. I; Otis T. Mason, *Aboriginal American Basketry*, Rept. U. S. Nat. Mus. for 1902, Washington, 1904.

It seems that the manufacture of coiled work was related to the more or less plentiful occurrence of cedar and spruce, which furnish much of the necessary material.

Among the Thompson the greatest number of baskets were made by the Utā'mqt or Lower Thompson people who live in the Fraser River Canyon. At this point, in the heart of the Cascade Mountains, the salmon fishing is best, and cedar of a good quality abounds. The Utā'mqt still continue to be the best basket makers of the entire tribe.

Although the Utā'mqt dwell in a more favored region, the Ntlakyā'-pamux'ō'e ("Real Thompson") of Lytton and the Stlaxai'ux^a of the Fraser River Valley above Lytton who live in a more arid, barren country also produced baskets in considerable numbers. They were obliged to use spruce root occasionally in place of cedar, although the latter was preferred. Some was imported from the lower reaches of the river but probably the greater part of what they used was gathered along certain streams in the neighboring mountains to the west. The upper bands, especially those living near Lytton, still make a great number of baskets and have created many odd forms. The people cleverly reproduce in basketry many foreign or native objects. The Upper Thompson appear to have more designs and design names than the lower bands, although the latter are considered to be the best basket makers and spend more time in this occupation.

To the east of Lytton the country is still more arid and almost no cedar is obtainable. Even spruce is scarce excepting in parts of the high mountains. To the east of Thompson Siding, along Thompson and Nicola Rivers, the people make almost no baskets, although there are individual women here and there who make them, having obtained their materials from the Fraser River region. According to the uniform testimony of the old Indians the Stuwī'xemux^a tribe (Athapaskan) which formerly lived in the Nicola and Similkameen Valleys did not make any coiled basketry. To-day the people of the lower Nicola River and the Coldwater, among whom a number of Upper Utā'mqt and people from Lytton and Thompson Siding have settled, produce a fair quantity. They also procure their materials from the mountains to the west as well as from the Utā'mqt. The Similkameen people practice the art less than the Nicola. The Thompson River people procure what little material they use (practically all their cedar root and about half of their grass and bark) by purchase from the Utā'mqt and Lytton. The Cornwallis or Ashcroft bands, which are situated farther east, next to the Shuswap, make hardly any baskets. The P'kaist or Spaptsan just to the west of them also do not produce baskets except in rare instances. In this group the Spuzzum are probably most

interested in basketry. They live farthest west, nearest the Utā'mqt, among whom all the women are basket makers. Considering the tribe as a whole, probably more than two-thirds of all the women weave baskets.

MATERIALS

The cedar tree furnishes the greater part of the material used in the manufacture of baskets. Its roots are especially sought for this purpose, while the trunk and twigs are seldom employed. Only when cedar can not be obtained is recourse had to other materials as substitutes. Hill-Tout⁶ says that the people realize that cedar resists wet and rot longer than any other fiber in that region and is consequently preferred. Many baskets show surprisingly little wear, even after nearly half a century of constant use.

For ornamentation finer and more flexible vegetable products, such as grasses and thin barks, are required. The following is a list of the substances used by these tribes in basketry work:

Cedar (<i>Thuja gigantea</i> Nutt.)	-----	kwa'tkwe'lp
Juniper (<i>Juniperus</i> sp.)	-----	pū'netp
Spruce (probably <i>Picea engelmanni</i> Eng.)	-----	tsxazé'lp
Reed (<i>Phragmites phragmites</i>)	-----	tloxké'ê tluxkā, or rhoitlexin
Wheat or rye or alkali grass (<i>Elymus triticoides</i> Nutt.)	-----	pešemiltēn
Bird cherry (<i>Prunus emarginata mollis</i> Walpers) ⁷	-----	spazusé'lp
Chokecherry (<i>Prunus demissa</i> Walpers)	-----	zolkūé'lp
Birch (<i>Betula papyrifera</i> Marsh)	-----	kwo.li'ne'lp
Cat-tail flag (<i>Typha latifolia</i> L.) or rushes:		
⁷ Full grown	-----	.tlkai'-tx ("wide leaf")
Young plant	-----	.nkōetei.tx kou't
Tule (probably <i>Scirpus lacustris</i> L.):		
Full grown	-----	tlené'.lt
Young plant	-----	tselū't
Balsam (<i>Picea pungens</i> Eng.)	-----	tlesa'lp
Alder, red (<i>Alnus rubra</i>)	-----	kwīé'lp
Oregon grape (<i>Berberis</i> , two species)	-----	tsalzaé'lp
Wolf moss (<i>Evernia vulpina</i> L.)	-----	kolomé'.ka ("light yellow branch")
Western flowering dogwood (<i>Cornus canadensis</i> L.)	-----	kwei'txelp or kwoi'txelp
Indian hemp (<i>Apocynum cannabinum</i> L.)	-----	spā'tsen

For the body of the baskets, when the long pliable roots of the cedar tree are not procurable, those of the spruce or juniper furnish the foundation and sewing material for the coils. For the bottoms, where frequently slats of wood take the place of coils, the sapwood, the heart of the cedar, or any wood which splits easily and smoothly, is utilized. Among the Upper Thompson, pine and poplar, and even parts of packing boxes, or cedar shingles sometimes serve instead of

⁶ Charles Hill-Tout. The Native Races of the British Empire, North America, pp. 110-118.

⁷ Used only if *Prunus emarginata* can not be had.

these. The wood is nearly always used in a dry state; but sapwood is often taken when quite green. Rather recently the rattan binding which comes fastened around Chinese packages of rice has also been utilized.

For the surface decoration, since a much more pliable material is needed than can be secured from the tough roots, even when they are split into fine thin strips, the Indians gather grasses and the bark of the cherry and birch. Reed (*Phragmites phragmites*) grows more abundantly in the lower Fraser country, from which the Thompson import it in large quantities. It is commonly used, as it stands in high repute for its white color and because it takes dye well; but when not obtainable, grasses of a more yellow tinge are accepted, and even some of a slightly purplish hue. Bark is usually second choice, although that of the cherry is applied for purposes of imbrication in red nearly as often as grasses.⁸ According to Mason⁹ *Typha latifolia*, *Phragmites phragmites*, and *Scirpus lacustris* are the principal basketry materials of the Klamath and Modoc. Cherry and birch bark are not given in his list of materials as being used by any of the tribes. It seems that squaw grass (*Xerophyllum douglasii* Walpers) is not used by the Thompson Indians and it probably does not grow in their country nor in that of their near neighbors, but it was employed occasionally for imbricating by the Coeur d'Alène.¹⁰

For children's toys the mothers make miniature baskets imbricated with colored straw and decorated with beads, shells, dyed grass, hair, quills, or feathers which are attached to the outer surface by tying. None of the flexible ornaments are caught in with the stitches as in the Pomo baskets from California.

The Salish tribes confine themselves to a very few colors. Red and black are seldom replaced by yellow or purple, the patterns or designs being practically always worked in one of the first two colors. They are never used for the background, however, which is always white, light yellow, or purple, as the case may be, when the surface is imbricated. The purple grass called *tluxka* is used extensively only by the Upper Thompson tribe, most of the people objecting to it because it is very difficult to obtain enough of one shade to cover more than a small surface, and uniformity in this respect is the aim of the expert basketmaker.^{10a} In the course of time the purple changes greatly in hue, and not always evenly, hence it is confined to small fine baskets or to designs which are made up of lesser elements.

⁸ *Prunus emarginata* is selected because of its light color, smoothness and gloss. Together with *Prunus demissa*, it grows quite abundantly all over the Thompson country, so that very little is imported.

⁹ O. T. Mason. *Aboriginal American Basketry*, pp. 208 et seq.

¹⁰ The Coeur d'Alène used willow bark in addition to the others and also for imbrication availed themselves of grasses dyed brown and yellow as well as black and red. The rush, or bulrush, and likewise tule were sometimes employed for coil foundation and sewing material, but seldom when any cedar roots could be found.

^{10a} See, however, remarks above on this page.

White, in addition to providing a background for setting off the design, is likewise employed for outlining or for separating red and black parts in a single pattern.

As may be expected from the limited range of color, there are naturally few dyes in use. Cherry bark in its raw state, or light-colored grass soaked in a decoction of alder, supply the red. Black is most commonly obtained either by burying the material to be dyed in muddy deposits of decomposed vegetal matter or by steeping it in a decoction of roots and decayed plants which have been brought in from the swamps. Sometimes a mixture containing charcoal is used. In the region of Lytton a modern method for dyeing cherry bark black is to steep it in tea, while in the neighborhood of Spuzzum an extract of balsam bark (*Picea pungens* Eng.) gives the same result, but this process of dyeing requires many days. The branches and bark of the western flowering dogwood (*Cornus canadensis* L.) are also boiled to make a black dye. About half of the material gathered is colored, while the remainder is used without coloring. Old baskets, bark vessels, or kettles of white manufacture serve as dye pots.

Calking was especially practiced by the upper bands. As most well-made baskets were water-tight or nearly so, by being soaked or used as receptacles for water they soon became moisture proof. In cases where these methods would not work, and a water-tight condition was essential, several substances were used for calking.

Sometimes fresh soapberries were mashed and boiled in the baskets, the fine seeds and sticky matter working into every little crevice and hardening there. Repeated washings seldom removed this filler as long as hot water was not employed.

Heated cactus and probably the buds of the balsam poplar were sometimes smeared into the cracks, forming a glue which later solidified.

Old baskets with holes too large to be treated in these ways were mended with the hardest and darkest colored yellow pine pitch obtainable. A large lump was placed upon a rock of suitable size and flatness which was heated in the fire. A smaller, hotter rock of the same shape was laid upon the pitch, which, as it melted, oozed out between the stones, where it was picked up on a flat pointed stick and applied to the spot which required attention, and cooled to a durable varnish. New baskets were seldom pitched, but when necessary a temporary calking was secured by rubbing them on the inside with hard deer tallow.

Nearly all the Upper Thompson informants agree that long ago there were no substitutes for grass and cherry bark, which were either dyed or left in their natural state. Grasses were substituted for reeds and a few informants said that they had heard that the

Upper Thompson Indians occasionally ornamented with quills in place of these. They did not know whether or not porcupine or birds' quills were selected, but felt sure that red and white were the colors preferred. Elæagnus bark, white and dyed red, and the inside bark of cedar or willow may have been used rarely. The Lytton people had substitutes for cherry bark, but what they were has not been learned. Since the coming of the white man they have also used strips of black dress goods for imbricating. (Pl. 1, a.)

Some old women of the Thompson tribe and neighboring bands tell of the following substitutes for bird-cherry bark:

1. Chokecherry (*Prunus demissa*). Only the brightest colored and glossiest parts of the bark were chosen.

2. Birch (*Betula papyrifera*). Only the best was collected and separated into layers by splitting and pulling, those of proper thickness and flexibility being then divided into ribbons of the required width.

3. White stems of young rushes and tule (*Scirpus lacustris*) were sometimes taken green and then dyed black in the same way as the cherry, or yellow by means of a decoction of wolf moss, or red with a dye usually extracted from the bark of alder roots.

4. The stems of an *Elymus*, and rarely those of other grasses, were substituted for reeds. Grass, tule, and rushes were used for imbrication only when bark was not obtainable. Besides red and black, yellow was derived from the root bark of the Oregon grape, or from wolf moss. These women do not remember having heard of the use of the inside bark of cedar, nor of that of willow and elæagnus bark, nor of goose and porcupine quills. In recent times good oat straw, black dress goods, and the inner corn husks have been introduced by some in the place of grass.

From these rather conflicting reports it may be surmised that there were many local variations in the employment of substitutes.¹¹ In several areas it has been ascertained that there was no yellow, while in others a few plants from which this color could be obtained seem to have been known and used. So far, in all the collections, no Thompson basket bearing designs wrought in yellow material have been found, except one which is unmistakably modern, with grass ribbons colored with aniline dyes.¹²

For baby carriers, according to many people, yellow coloring matter was obtained from the Oregon graperoot, or from wolf moss. Red was derived from the bark of the alder or from red paint, purple and pink from berry juices and *Chenopodium*, blue from the roots of

¹¹ Most women prefer to leave a basket unfinished for a time rather than substitute material which they regard as inferior.

¹² Correspondence with Mr. Teit (1918) discloses the fact that several informants claim that yellow dye was formerly used among the Upper Thompson. Mr. Teit has seen only two or three baskets on which the grass was dyed yellow. The use of this color is said to have been more common among the Wenatchi and to the south.—F. B.

Commandra pallida and decayed wood, and a green from cedar leaves and other plants and grasses. None of the colors produced by these means was very bright, and the brilliant commercial dyes which have now found their way into the region are very much in demand.

GATHERING OF MATERIALS

The women of the Upper Fraser and Nicola bands gather much of their own cedar root, sometimes traveling long distances into the mountains to the west, while the rest of their supply is procured from the Utā'mqt, in whose country large cedars grow close at hand. The people of some localities, for instance those living along the Thompson River, where cedar, if it grows at all, is stunted and of inferior quality, purchase almost all of their material from the Utā'mqt, either paying cash or, what is more often the case, by an exchange of commodities.

Sometimes a woman will buy a sufficient supply to last a year, during which period she may complete from 2 to 10 baskets of various sizes in her spare hours. A few Utā'mqt women are professionals, devoting almost their entire time to producing objects for sale. This is especially true of the older women whose children are grown, or who live with friends and are relieved of the responsibility of food gathering. Among the upper bands basket making is always a secondary occupation.

The best time for collecting roots for splints is in June, although they may be gathered at any time if the ground is not frozen. They are more easily pulled and split, however, in the early summer when the sap is running, while if taken too late the splitting becomes difficult and in order to remove the cortex from the roots it is necessary to scrape them, a far more tedious process than peeling.

Cedar trees are selected which have long trailing roots of good grain. The most desirable ones belong to old large trees because of the superior toughness of their fiber and because they are usually found in rich soil. Trees growing in poor or rocky ground are liable to have gnarled roots which are often too brittle. When a tree has been selected, the soil is dug away by picking and scraping with digging sticks, or nowadays with modern tools, until the roots are exposed. Frequently the men assist in the heaviest part of the work. The uncovered roots are then examined as to texture, length, and thickness. They are seldom chosen if more than 5 or 7 cm. in diameter at the thickest end and from 2 to 5 m. in length. If found to be suitable, they are dug out and cut off in pieces as long as possible, and taken home on the back in bundles containing twenty or more. To prevent them from drying out and becoming brittle before further treatment can be administered, they are buried in damp earth or placed in water.

Reeds and grass for imbrication grow in swamps. Certain Indians say that they are cut at about the same season, that is, in strawberry time, for then they are not too coarse. They are dried in the sun and subsequently smoked. Other informants say that the grass is cut in the fall, after becoming thoroughly ripe, or even occasionally from standing stems in the early winter. Only the best stalks are selected and these are cut off close to the joints so that the pieces which are free of imperfections may be as long as possible.

Around Spuzzum, bark which is used for imbrication is peeled from the bushes in narrow strips as long as can be obtained, a knife or some other sharp object aiding in the work. According to Thompson and Lytton people, cherry bark was formerly peeled from the tree in the same manner in which birch bark was removed. The tree was encircled with two incisions, the distance between them depending on the extent of good bark available. These were then connected by a vertical slit which made it possible to pry off the band and to divide it into ribbons of the desired width. When steel knives became common, the bark was cut from the tree spirally in long strips about one-half a centimeter wide.

PREPARATION OF MATERIALS

COIL AND SEWING SPLINTS

After the roots have been taken home they are peeled or scraped and the strips of cortex are saved for tying bundles of grass or splints or for mixing with those of second grade in coil foundations. The clean roots are split and resplit with a knife or a sharp awl until the single splints are about 2 millimeters wide and half a millimeter thick. Good roots split easily. Strips which are straight and even in grain are put aside for sewing purposes, but uneven, short, or brittle pieces are saved for padding. The finest splitting is not always done at the time when the root is first roughly divided but only just before it becomes quite dry. In this work the point of the knife or awl is inserted in the center of the strip near one end, which causes it to split, after which the two sections are pulled apart with the hands. If the piece does not split straight along the middle line, the direction is corrected by cutting in with the knife or the awl. When very long roots are divided it is necessary to take a fresh hold after pulling as far as the outstretched arms will allow. Sometimes two women work conjointly, or one woman holds her strip in her teeth and spreads the pieces apart gradually by inserting her fingers in the crack. It requires only a short time to obtain many splints from a good piece of root. Those intended for sewing are made as uniform in size as possible and are flat, because they are taken from the smooth outside part of the root next to the cortex, but no such care

is exercised in regard to the coil splints, which are from the center and vary considerably in shape, cross section, and size.

The split sewing splints, which range from 1 to 3 meters in length, are doubled up and tied in bundles about 10 centimeters in diameter. Generally all splints are used their full length. Foundation splints, being uneven in length and inferior in quality, are worth about half what is asked for the others. (For prices see pages 156, 157.)

There are several methods of tying these bundles. In the most common one the piece of cortex with which the bundles are bound is wound several times around one end, then spirally to the other, where it is again given a few turns at one place and its end either tied or tucked under. (Fig. 1.) Bundles of splints are also doubled up and the ends folded into the body of the bundle, which is held at the center by a strip of bark or grass tied around it.

Most of the basket making is done in the winter, for the people then have more leisure for pursuing such work. Plenty of material is soaked and prepared a day or two beforehand. First the sewing splints are permitted to lie many hours in cold or tepid water until pliable. Nowadays an ordinary basin holds them, but long ago the receptacles were medium-sized baskets of similar shape. (See fig. 31, p. 207.) They are



FIG. 1.—Sketch illustrating the wrapping of sewing splints

next examined and if their width is found to be irregular the point of the awl marks the amount to be taken off at the wide places, and the superfluous wood is split off by pushing the awl upward along the splint. Thus each one is evened throughout its length, and indeed some require considerable "planing." If the excess material is too little to be split off it is scraped away with a knife. Those pieces which are too thick throughout their entire length are soaked for a few minutes in hot water, which softens them more effectually, and a layer is then split off, but if they are merely too thick in spots they also are smoothed by scraping or by inserting a thin knife blade, the finger nail, or a very sharp awl into the wood at one end of the excess layer, which is then stripped off with a downward motion. When each splint has been reduced to the desired size one end is sharpened to a point with knife or scissors so that it may easily pass into the hole made by the awl, for no needles or bodkins are used. If it is not to be used immediately it is doubled up, usually twice, and tied in the center in a simple knot and thrown into a basket to dry.

Since dampness imparts to the splint the pliability necessary for tight sewing, and cold water is not readily absorbed, when it is

necessary to moisten material quickly, hot or even boiling water is poured over it and then the soaking requires only a very brief time. Often the splints are merely drawn through it once or twice, for if they are permitted to become too wet and spongy it is almost as difficult to sew with them as it would be if they were dry. Furthermore, when soaked and swollen during sewing they are apt to shrink afterwards, leaving spaces between the stitches; and, since all basket makers prefer a practically water-tight product, precautions are taken to avoid all unnecessary shrinkage. By holding the splints in the teeth and working them back and forth with the hands, or by pulling them over the edge of a sharpened piece of a deer antler several times, much of the stiffness may be eradicated.

Those who are called careless by their neighbors do not prepare their material in advance, but use it without much preparation. They may shave off the widest sections just prior to sewing or even after the splint has been drawn into place. Consequently, their work is very coarse, although in other respects, such as in accuracy of sewing or in shaping the basket, it may have merits.

In addition to attempting to create a uniform thickness and width throughout the extent of the splint, there is an effort on the part of the craftswomen to have them all conform to one standard size, which entails much labor as well as waste, if the bundles secured in trade are not well graded. However, most packages are uniform enough for ordinary purposes, and wise purchasers look carefully to this point when buying.

Other women, having acquired several lots, grade their splints in regard to width, and also, to a less extent, to thickness, sorting from different bundles. The narrow, thin pieces are put into fine work, or into smaller baskets, and the heavier and coarser ones are reserved for burden baskets and the like.

GRASS

As has been before stated, the grass stems that are gathered green usually are placed in the sun to dry and then in the smoke above a fire. Professional basket weavers next wash them in water, dry them again, remove the outer skin, cut them in regular lengths, and put them up in bundles. Grass dried in this fashion loses its color; therefore some women prefer to place it in a dry shady spot; thus the original tint is partially preserved. In olden times, at any rate around Spuzzum, grass was never dyed, but that is not the case now. The dyes have been discussed before.¹³

For backgrounds of designs very white grass is desired. When the outer surface is dingy the blade is sometimes split and turned inside out, for although the natural polish of the surface is then hidden, the added whiteness is considered a compensation. Boiling, according

¹³ See p. 147.

to Hill-Tout, gives the grass a silvery, glistening appearance and makes it easier to unroll and flatten the stems. If only yellow grass is available it is sometimes covered with diatomaceous earth, such as is used to clean and whiten goats' hair, and is then beaten with a flat stick on a mat or skin until satisfactorily bleached. As a rule those stems which are very yellow, brown, or purple are not prepared, because they do not sell well, and any stems which are noticeably lighter or darker than the shade desired and which are mixed in with the others are discarded. However, material of this description is not wasted because, since no importance is attached to the appearance of the bottoms, it finds a place there, even on the finest products. The women say, "No one is apt to notice the bottom."

The sections of stems which are cut and arranged in bundles consist of the smooth parts between the joints, and therefore vary in length. When bundles are prepared for sale the joints are not always removed, but the basket maker attends to this when she begins her work. The longest straws measure about 35 centimeters, the shortest from 12 to 13 centimeters, while the average length is about 25 centimeters. The number of straws in each lot is supposed to be approximately 100. Usually an effort is made to have all the stems in one bundle of the same shade, although occasionally odd ones are mixed in. They are nearly all of the same diameter. Before being used, the grass is split with the point of the awl and divided generally without difficulty. It is then pressed and smoothed on a flat surface with the side of the instrument.

There are other methods of putting up bundles of straw. Some are assorted, the longest cut in two and the short ones left full length. The cortex which has been scraped from the cedar roots is used to tie them together. Two bundles are generally found to be enough for an average amount of imbrication on a medium-sized burden basket.

BARK

After prying the bark from the trees or shrubs and splitting it into ribbons it is necessary to remove all roughness on the under surface, such as may be caused by adhering parts of the wood. This is done by scraping with a knife or sharp stone, a process which renders the bark more pliable, especially at places which cover knots. The outside is carefully scraped also to remove the grayish, dusty epidermis which is visible, especially on cherry bark. Other kinds that are procured in the Lower Fraser canyon, where the climate is moist, also have a gray epidermis. After this has been removed the smooth, glossy under bark is exposed. Careless women do not take the trouble to do this, but merely chip off the bits of wood, while others in their excessive zeal or carelessness scrape too deeply, destroying much of the gloss and rich color and cutting down to the green sap. This weakens the material so that when it is used in imbrication it soon wears through.

The cleaning is done with a sharp knife on a flat board or table.

In former times bone knives, stones, and fine-edged arrowheads or spear points were the implements employed, but steel has been used so long now that many women know little or nothing about the former methods and tools.

When imbricating or beading, the pieces of bark are cut off as required and the ribbons split into lesser widths according to the size of the coil to be ornamented. When several lines of beading in varying colors are used on a single coil, the strips are necessarily very narrow.

Grass stems and bark ribbons as well as splints are soaked just before being used.

TOOLS

The tools needed in harvesting were not numerous. For uncovering and loosening the roots, digging sticks and pry bars were formerly essential, but are mostly supplanted by shovels and picks at the present day. Axes, hatchets, and knives are used for cutting; and knives, pieces of antler, and sharpened bones for peeling.

In the preparation of material bone awls served to split the roots and perforate the coils in sewing, while crooked pieces of antler were employed to smooth the bark and grass. Awls were manufactured from the front leg bones of the deer and sharpened to very fine points. Iron ones have come into use only very recently. There are different sizes of awls, the small ones being adapted to finer work or for difficult places where there is not much room for tools or hands.

For measuring, the only instrument that could be designated a tool is the piece of sewing splint sometimes held up to gauge the proposed height of the walls.

Sticks were employed for holding out side walls or flattening warped bottoms to which they were lashed.

DISTRIBUTION OF COILED BASKETRY AND MATERIALS USED BY SALISH TRIBES

Tribe	Materials used				
Lillooet.....	Coiled basketry ¹ ..	(?).....	Cedar root.....	
Thompson.....	do.....	(?).....	do.....	Spruce root.....	
Shuswap ²	do.....	do.....	do.....	
Okanagan group:					
Okanagon ^{3,4}	do.....	Sapwood ⁵	do.....	(?).....	(?)
Nespelem ^{3,4}	do.....	do.....	do.....	Spruce root.....	Juniper root.
Sanpoil ^{3,4}	do.....	do.....	do.....	do.....	Do.
Colville ³	do.....	do.....	do.....	do.....	Do.
Lake.....	do.....	do.....	do.....	do.....	
Columbia group:					
Columbia ^{3,4}	do.....	do.....	do.....	do.....	Do.
Wenatchi.....	do.....	do.....	do.....	do.....	
Coeur d'Alene ³	do.....	do.....	do.....	do.....	
Salish group:					
Spokane ^{3,4}	do.....	do.....	do.....	(?).....	(?)
Kalispel ³	do.....	do.....	do.....	do.....	
Pend d'Oreille ³	do.....	do.....	do.....	do.....	
Flathead ³	do.....	do.....	do.....	do.....	

¹ Has been made from time immemorial, but not now made by most tribes.

² Sapwood foundation (Lillooet and Thompson only). All the tribes made their coils of a bundle of splints.

³ Tribes that have not made coiled baskets for some time. In some of these tribes a few old women remain who made baskets in their youth. Basket making has lapsed the last two or three generations. The most eastern tribes stopped making them earliest owing to the change in their culture and the inauguration of hunting on the plains after the introduction of the horse.

⁴ Tribes that in olden times made the least basketry.

⁵ Not much used.

MATERIALS FOR IMBRICATING AND BEADING—INLAND SALISH TRIBES

Tribe	Beading	Imbricating	Materials used			
			Phragmites.	Elymus.	Tule or rush?	
Lillooet (1) ¹	Beading.	Imbrication ²	(?)	(?)		
Thompson (1)	do.	do. ³	Xerophyllum douglasii.	do.		
Shuswap (2)	do.	do. ⁴	(?)	do.		
Okanagan (4)	do.	do. ⁵	(?)	do.		
Nespelem (4)	do.	do. ⁶	(?)	do.		
Sanpoil (1)	do.	do. ⁷	(?)	do.		
Colville (4)	do.	do. ⁸	(?)	do.		
Lake (3)	do.	do. ⁹	Kind unidentified.	do.		
Columbia (3)	do.	do.	Xerophyllum douglasii.	do.		
Wenatchi (1)	do.	do.	(?)	do.		
Coeur d'Alene (2)	do.	do. ¹⁰	Kind unidentified.	do.		
Spokane (5)	do.	do.	do.	do.		
Kalispel (5)	do.	do.	do.	do.		
Pend d'Oreille (5)	do.	do.	do.	do.		
Flathead (3)	do.	do.	do.	do.		

Tribe	Materials used			
	Cherry bark.	Quills.	Variety of dyed material.	
Lillooet (1) ¹	(?)	(?)	do.	do.
Thompson (1)	(?)	(?)	do.	do.
Shuswap (2)	Willow (inner bark)	(?)	do.	do.
Okanagan (4)	(?)	(?)	do.	do.
Nespelem (4)	(?)	(?)	do.	do.
Sanpoil (1)	(?)	(?)	do.	do.
Colville (4)	(?)	(?)	do.	do.
Lake (3)	Willow (inner bark)	(?)	do.	do.
Columbia (3)	(?)	(?)	do.	do.
Wenatchi (1)	(?)	(?)	do.	do.
Coeur d'Alene (2)	Cherry bark.	Cherry bark.	do.	do.
Spokane (5)	(?)	(?)	do.	do.
Kalispel (5)	(?)	(?)	do.	do.
Pend d'Oreille (5)	(?)	(?)	do.	do.
Flathead (5)	(?)	(?)	do.	do.

¹ The numbers in parentheses show the former relative degree of the use of imbrication among the tribes, although it is very difficult now to tell the ratio of imbricated to unimbricated work in most tribes two or three generations ago. 1 indicates greatest amount; 5 the least.

² One or more kinds of dyed material.

³ Used about 1800 or later; still common.

⁴ Very common west; not much east.

⁵ Probably.

⁶ Introduced about 1800 or later.

⁷ Slightly used about 1750; probably earlier.

NOTE.—The Klickitat learned the art of imbricating and making some kinds of baskets from the Cowlitz and Nisqually.

NOTE.—Obtaining black by burying materials to be colored seems to have been common among all tribes practicing imbrication.

TRADE

Materials for basket making are arranged in lots of a more or less standardized size and are sold or traded in this form. Bundles of splints, grass, and straw, and reels of bark vary somewhat in size, therefore the prices set upon them are not absolutely fixed. Packages of sewing splints which are 10 centimeters in diameter and about a meter long cost \$1, while foundation splints, being of inferior quality, are to be bought for half of that sum. Average-sized bundles of grass, measuring from 15 to 19 centimeters long and 6 centimeters in diameter, cost 50 cents, but there are 25-cent, 75-cent, and \$1 sizes as well. Reels of bark about 15 meters long and 4 centimeters in diameter are 50 cents, with other sizes graded like grass bundles. The ribbons of bark are not of a standard width, but prices do not seem to depend on this. There is usually much trimming to be done on all material which is purchased and this is especially true of the edges of bark ribbon.

Long ago there was considerable trade in the finished products, not so much between individuals in the same band or between neighboring bands and tribes as between people living near the Cascade Mountains and those inhabiting the arid country farther east. For reasons given elsewhere the Cascade people had developed a great basket industry, while the eastern tribes manufactured very few pieces. For instance, the Upper Thompson did not make enough to supply their own wants, therefore they could not trade with tribes east of them who had even fewer than themselves.

Although bark baskets were plentiful, there was in the east a strong demand for woven work which the western tribes tried to meet. Therefore they produced more than they needed for home use. The Lytton and Upper Fraser divisions, although living in the arid country, were nevertheless near the Cascades. Although they did manufacture a few baskets for sale, they never had a surplus. The people of Spences Bridge and the Shuswap who were their neighbors are reported to have made very few. The latter obtained theirs from Lytton and Lillooet, while occasionally the southern part of the tribe seriously depleted the scant supply belonging to the northern branch. The Stuwí'x (Athapascan), also near at hand, made none whatever, but satisfied their needs by purchasing from the west, principally from the Lower Thompson. Very few Lower Thompson baskets went up the Fraser, because at that time the people living along its banks made all they required. Moreover, the trade route for basketry from their region was interrupted by a cross route from the direction of the Lower Lillooet, which reached the Fraser River at Lillooet and at Bridge River. For similar reasons very few Lillooet specimens traveled south, because in this direction

and to the east the Lower Thompson controlled the situation. Therefore Lillooet baskets rarely found their way beyond the Shuswap and Chilcotin, and not many came that far. It is doubtful if any ever reached the Carrier and tribes beyond the Shuswap, while at Kamloops, which seems to have been the farthest point for trade toward the southeast, they were only rarely seen. Thompson baskets, on the other hand, traveled there in greater numbers, but the majority were of Shuswap manufacture. The Thompson, besides trading with the Shuswap, almost entirely supplied the needs of the Nicola and Similkameen and probably largely those of the Okanagon, although some Wenatchi baskets traveled to them also.

It has not been learned whether or not the Thompson products reached the Lake or Kutenai tribes. Evidently few went beyond the Okanagon to the Sanpoil or Colville.

The following information as to prices paid by the Spences Bridge and Nicola people to those of Lytton and Lower Thompson about 1850 comes from old Spences Bridge informants.

The largest-sized burden basket was exchanged for any of the following:

- One secondhand buffalo-skin robe.
- One secondhand man's buckskin shirt with fringes.
- One secondhand woman's skin dress with fringes.
- One large dressed buckskin of the best quality.
- One medium-sized dressed buckskin and half of a doeskin.
- One and one-half fathoms of flat disk-shaped beads.
- Two and one-half fathoms of flat disk-shaped beads, alternating with large blue glass beads.
- Two and one-half fathoms of dentalia.
- Twelve packages of Indian hemp bark.
- Six packages of Indian hemp twine.
- Ten cakes of service berries mashed and dried.
- Ten cakes of soapberries mashed and dried.
- Ten bundles of bitterroot peeled and dried.
- One Hudson's Bay tomahawk or ax.
- One secondhand copper kettle of medium or small size.
- One steel trap (?).
- One secondhand flintlock musket.

These were only the principal commodities which could be traded for baskets. Many others were also media of exchange.

One average-sized basket brought—

Two good-sized woven mats of tule or rushes. These were for food, bed, or floor.

Two woven bags of Indian hemp or elæagnus twine.

One pair of secondhand long leggings with fringes.

One good doeskin.

One small basket (probably the smallest burden basket or *spa'nêk*¹⁴) was exchanged for—

One pair of secondhand leggings of Hudson's Bay cloth (red or blue).

One secondhand Hudson's Bay cloth coat (white or blue).

One pair of men's ordinary new moccasins.

One piece of heavy buckskin, enough to make a pair of moccasins for a man.

Two of the largest-size baskets, burden or kettle shapes, or one large *.stlūk*¹⁴ imbricated all over, together with one small basket, purchased one 2-year-old male broken horse.

All of the baskets traded were new, of good material and workmanship, and imbricated. One of noticeably inferior make would not be worth as much.

Spuzzum informants state that in the old days a dugout canoe was worth a great deal more than the best basket. If any canoe was ever traded for one the latter must have been unusually large and fine and included among other articles offered in the transaction or else the canoe must have been very small and old.

Among the Lower Thompson imbricated baskets were of much less value, but no satisfactory information concerning trade customs at this period could be obtained. It seems that prices varied much even among themselves and in some cases baskets were to be bought for very little.

The Upper *Utā'mqt* and *Lytton* informants on the whole verified the statements made by people of the *Spences Bridge* division as to the prices paid by the upper division. With them dressed buckskin or leather was the chief article of exchange because of the abundance of deer in their country.

They said that a new, ordinarily good-sized burden basket measuring about 30 or 35 centimeters in height and decorated with an average amount of imbrication would bring an ordinary dressed buckskin.

A big basket, one of the burden variety of the largest size, or a huge kettle basket, or a good-sized *.stlūk* would be worth from one and one-half to two good buckskins. A smaller size, such as a *spa'nêk* or *spa'penek*¹⁴ or a large bowl, nut-shape or round basket, imbricated all over, might be exchanged for one dressed doeskin.

The largest *.stlūk* size, when entirely covered with imbrication, could be exchanged for two or three buckskins and sometimes for as many as four, if the basket were of unusual size or ornamented with striking designs which attracted the buyer. Such baskets always brought more, whatever were the kinds or shapes. Prices really depended on the size and the amount of ornamentation, the latter being evidence of the great amount of labor and time expended. According to the informants the manufacture of large wholly imbricated baskets seems to be steadily decreasing.

¹⁴ See p. 197.

Besides trading with the people of the interior the Lower Thompson also sold baskets to the Lower Fraser people on the coast who formerly did not make coiled basketry, and the Lower Lillooet did the same. Usually Thompson baskets were used from Chilliwack east and south, while Lillooet products were seen lower down, or to the west. Thompson baskets also crossed the line to Nootsak and beyond, in the State of Washington. A few appear to have reached the Skagit and neighboring tribes, who also received occasional Wenatchi specimens from east of the Cascades.

Nothing definite was learned regarding prices paid by the coast tribes for Thompson wares, but it is known that the dugout canoes before mentioned, woolen blankets of coarsely spun goat's hair, the best quality of grass stems for imbrication, and shells were some of the articles of exchange.

THE TECHNIQUE OF COILING

The Indians say that formerly great care was exercised in making baskets, in regard to size, evenness, and regularity of stitching, and that the people were especially particular in their selection of materials. On the whole, coils and sewing were smaller and the work tighter than is customary in modern times. The greatest attention and skill was lavished on fancy baskets, although it is said that the modern fancy types were not made long ago. The term applies to forms not serving for general household purposes, such as women's workbaskets, gift, or water baskets.

Now a much coarser technique prevails for all kinds, as it has been found to answer about as well and requires less time, but the finer work has not altogether disappeared; in fact, exquisitely delicate workmanship is discovered on some of the modern fancy shapes, which are offered for the tourist trade or used for special purposes by the people themselves.

While not much information has been obtained as to the work of beginners, all the women declare they are much slower and more awkward than experts. They are apt to use too large coils and their stitching is coarse and irregular. There is great individual variation. Some beginners do very poor work, while others, even when quite young, almost equal experienced women. Some are much more careful and neat, having a very good eye and judgment, as well as ability to learn rapidly. It is easy for the experienced women to tell who will become good basket makers and who will never exceed mediocrity.

Because some women have learned to make certain forms better than others they confine themselves almost entirely to their manufacture. The old women seem to make chiefly burden and circular baskets or oblong trays. It may be because these were the forms

most generally in use in their younger days and that, therefore, they are easier for them to make.

The character of coiled basketry depends upon the foundation material of the coil, its arrangement, size, and flexibility, and the way in which the coils are stitched together. Among the tribes here considered, as has been previously mentioned, the foundation is a bunch of splints of irregular cross section, varying in size and length, which are packed together and tightly sewed with thin, fairly uniform sewing splints of the same material. The method of sewing has already been touched upon. The foundation is perforated by means of a sharp awl, the sewing splint is passed away from the worker through the hole with the right hand until the butt end nearly disappears, the splint is carried back up over the coil toward the person manipulating it, down in front and through a second hole which the awl has made just to the right of the first one. It covers and catches the coil material just to the right of the first stitch, and is



FIG. 2.—Sketch of awl

finally pulled into place, the stitch being drawn as taut as is possible, sometimes being assisted into "settling" by a sharp tapping with the awl. The repetition of this process constitutes the technique of

sewing the coils to each other. If the splint is long, it may be pulled through a little way before the worker takes a fresh hold on it nearer to the basket. Any interlocking of stitches is purely incidental to piercing the coil; furcation of stitches depends upon the closeness of sewing. There is no attempt at regular furcation.

All coiling, unless it is by left-handed persons, is from left to right, or clockwise. The awl (fig. 2) is held in the right hand between the thumb and forefinger while the rim of the basket is grasped with the left thumb and forefinger. The awl is usually held between the second and third fingers or else dropped in the lap while the splint is being pulled into place. Before inserting the sewing strip the women usually pass the whole splint through the fingers of the right hand in order to keep it from twisting. The end is kept well pointed. When it frays the fringes are split off with the awl. While the hole is being made, some individuals keep the splint taut by seizing it in the teeth; others hold it with the left forefinger and thumb, in the meantime supporting the basket with the other fingers. In making bottoms the awl is inserted at right angles to the plane of the work which is held almost vertically in front of the person, but in constructing flaring sides it is driven very slightly upward and to the left, the coil being pushed out a little at each stitch. In constricting the coils it is thrust a little downward and to the right, the bunch of splints being pulled very taut in the same direction with the fingers of the left hand. With practice these movements become quite automatic.

In making bottoms and lids, if the coils are not carefully perforated at right angles to the plane and the awl inclines one way or the other (and many women do not seem to be aware that they hold the awl obliquely), the result is a bottom or lid which is not quite flat.

The tightest sewing is preferred, and when finished a well-made basket is far harder and stiffer than Bristol board. The stitches completely hide the foundation.

With the exception of rim or foot coils, or of a few which are placed at the curve between bottom and side walls, the coils in one piece of work are supposed to be uniform in size, and they usually are. Since the foundation splints are of uneven thickness and length, new ones must be added from time to time to replace others that are used up and thus maintain the original thickness. These are slipped in, a few at a time, from two or three up to five or six, as occasion demands. Their selection and incorporation into the coil requires a nice discrimination of sight and of touch, for one or two which are too thick or of faulty cross section might easily create a lump or a depression. Their length does not matter. When fresh material is added, that already in place is lifted up slightly with the left hand, and the new is laid in underneath, the ends being pushed in as far as they will go, up tightly against the last stitch. The following stitch catches the new ends, and holds them firmly together with the old splints. The number introduced varies greatly according to the nature and requirements of the coil. Often within five minutes' work none are added. One woman inserted two at the end of 4 minutes and two again after another 10 minutes. Another added three, and after 7 minutes two more, and then none until 12 minutes had elapsed.

The uniformity of the coil is gauged by eye, and more especially by feeling, the right forefinger and thumb, but sometimes the left, pinching the bunch from 3 to 8 centimeters ahead of the sewing. No other regulating devices are employed. Baskets of the same size ordinarily have coils which are approximately equal, although possibly containing a different number of splints, depending somewhat on the size of these. The number of splints for the coils of the same basket also varies. There are often from one to five less in some places than in others, while the same sized coils in one basket may be composed of as few as one-fifth to two-fifths of the total amount employed in the coils of another.

As an example, some observations are here given on the number used in making medium-sized circular baskets by certain informants who themselves pay little attention to how many are included, provided a proper sized coil is the result. In some instances the opinions of others concerning the work of a particular woman are also included.

- Informant¹⁵ No. 1.—10 splints; considered much coarser than the average.
Informant No. 2.—16 splints.
Informant No. 3.—13 splints; considered thick.
Informant No. 4.—20 splints; varied from 19 to 25; considered fine and thin
Informant No. 5.—15 splints; varied from 14 to 17.
Informant No. 7.—20 splints.
Informant No. 9.—19 splints.
Informant No. 10.—22 splints.

The first observation relates to a basket slightly larger than those made by informants Nos. 3, 4, and 5. In the different specimens the coils appeared about alike, except in that made by No. 1. Even there they seemed only a little larger than the average, while that constructed by No. 4 had coils which, if they differed at all, did not seem noticeably thinner to the investigator.

No. 25, who seems to have been a particularly fine craftswoman, well informed as to her materials and technique, and a very careful worker, had 20 to 24 splints per coil in her burden basket, most of which were necessarily quite fine with only a few coarse ones among them. No. 30 employed 23 to 28 in hers, some of which were very fine and only a few coarse. No. 24 had 17 to 23. No. 22 used nearly the same number, but hers varied more in size than those of No. 24. Nos. 12 and 13 said people paid practically no attention to the number of splints, their one idea being to produce a uniform coil of the proper thickness for the kind of basket under construction, and that thick and thin splints together were more easily handled than those all of a size. They declared that fine splints should be combined with thicker ones, even in fine baskets, because the coarse furnished the heavy filling, the others fitting into the chinks. Those who use only fine ones spend much time to no real advantage. If a woman's supply does not contain enough of these, she reduces some coarse ones before beginning work.

About half of the informants, and especially No. 1, roll the coil splints between their fingers at the place where they intend to make a splice. This makes the coil round and fits the splints close together. Five of the women before stitching very frequently drew the point of the awl once or twice through the loose coil splints, from where they were sewed at the left, to their ends at the right. Sometimes the tips of the fingers were used instead. Many did not attempt to manipulate the splints at all. The explanation of those who did so was that the process spread and straightened them and prevented their becoming entangled.

Any parts of the coil splints that seem to make the coil too thick are split or pared down far enough to prevent their spoiling the outlines. Where necessary the thick part is cut off. Some women are more particular about these points than others, but all pay some attention

¹⁵ See list of informants, pp. 431 et seq.

to them. From time to time the basket is held off for a critical inspection of the evenness of the coils, and if a finished round displays any irregularity care is taken to correct it by properly adjusting the size of the next coil, so that it will fill a depression or allow for a lump in that just completed. (Pl. 1, *b, c.*) To even up minor inaccuracies the sewing splint is tightened and tapped home harder and oftener while sewing. If the fault can not be remedied in one round it is usually accomplished in the second or third. Careless, inexperienced, or blind workers are not able to correct defects, and their baskets often have a noticeable waviness at the rim.

The differences in size of coil as made by individual women are slight, and seldom noticeable on finished baskets. Experts who detect very minute variations say that certain coils are too thick or too thin for a given size and kind of basket, for, roughly speaking, little ones should have smaller coils than large ones, otherwise they will appear clumsy. They occasionally criticize work as being too rigid, though as a rule this is considered a "good fault," except in very small pieces, flexibility being more often the reason for disapproval. Coils of average thickness, tightly sewed to render them rigid, are deemed best for trays, for unless these are stiff they are utterly worthless.

Rigidity is obtained by a thickness of coils sufficient for the size and proposed use of the basket, by closeness of stitches, by much wetting of both coil and sewing material, and especially by the tightness of the loop drawn around the coil which is accentuated by the tapping. This is done with the middle of the awl, which is held near its point in the right hand, thus allowing all the weight possible to be added to the blow; the left hand meanwhile pulls whatever slack there may be.

On small workbaskets and the like, the coils never can be too fine, but the making requires more time. Baskets of very delicate workmanship are naturally more valuable because of this quality and on account of the greater amount of time and labor expended on them, but they are not judged any better as objects of utility, and therefore are not often made. All women follow to a degree the rule of grading the size of coil to suit that of the basket, but some, if they have been in the habit of making chiefly one or another size, find it hard to alter their "hand." As with ourselves, however, there are those who are very adaptable and who can change about without difficulty.

The frequency with which splints are moistened depends upon the dryness of the weather and the condition of the fiber; that is, whether it is pliable or brittle from long seasoning; and also upon the individual handling it. If the splint is new or has been soaked well beforehand it requires very little wetting during sewing. While some women dampen it about every 5 to 10 minutes others dip the hand in water and rub the splint they are working with every three or four stitches.

No. 3 said that her fellow workers thought she made very rigid coils, although she believed they were no larger than the average. She was in the habit of pulling her stitches very tight and possibly she wet the material oftener than others, but she was not sure of this. She considered rigidity, even in very small baskets, to be not undesirable, notwithstanding the opinions of her friends, and could see no advantage in flexibility. No. 9 was often criticized for the same trait as No. 3, but she did not attempt to justify herself, merely remarking that she always had made baskets in this manner and did not think that she could do any differently. She did not seem clear as to why her work had this character, but thought perhaps her coils were a little too thick, and was of the opinion that thin walls were a necessary factor in flexibility.

Bottoms of spiral coil, when intended for rectangular baskets, are given the required shape by the introduction of a few short, fine, extra splints into the foundation at each round, where corners are desired. Thus the oval gradually assumes a rectangular form (see p. 173). Certain women also flatten the bunch of splints at these places by pressing it down and out with their fingers or pinching it out as they sew. This assists the widening process and prevents lumps.

About 50 baskets of various kinds were examined with the aid of several basket makers in order to obtain the consensus of their opinions regarding the proper size of the coil in relation to the kind and size of the basket. The following table is the result of this investigation:

Kind of basket	Size of basket	Diameter of coil	Comments
		<i>Mm.</i>	
Nut shape ¹ -----	Small-----	5-6	About right.
Do-----	do-----	7-8	Unnecessarily thick.
Do-----	Large-----	6-7	About right.
Do-----	do-----	8	Unnecessarily thick.
Barrel shape-----	Small-----	6	About right.
Do-----	Large-----	6	Do.
Do-----	do-----	5-6	Right but considered by some to be rather too fine.
Cup-----	-----	5	Very good; 6 mm. considered as right by some.
Bowl-----	Small-----	5-6	Right (no small bowls had coils over 6 mm.).
Do-----	Medium large-----	6-7	About right.
Do-----	do-----	5-6	Right.
Do-----	do-----	8-9	Too thick.
Large boiler size-----	-----	8	Good.

¹ For the names of the shapes see pp. 197 et seq.

Kind of basket	Size of basket	Diameter of coil	Comments
		<i>Mm.</i>	
Triangular-----	Small-----	5-6	Right.
Do-----	do-----	4-5	Right; considered fine work but not too fine for fancy basket.
Oblong, box shape--	Medium (fancy)---	6	Right.
Do-----	Large (fancy)-----	6-7	Good.
Spoon-----		6-7	Do.
Tray-----	Small-----	6-7	Do.
Do-----	do-----	4-5	Unnecessarily fine but right because sufficiently rigid. It was claimed that this size of coil would be too small for a large tray. The tray would be too flexible.
Do-----	Large-----	7	Good; one with 6 mm. coils also passed; one with 9 mm. coils considered too thick.
Burden baskets:			
Spa'penek-----		7	Good.
Do-----		6	Passed.
Do-----		9	Too thick.
Spa'nék-----		6-7	Good.
Do-----		8	Not too thick.
Tsi.'a-----	Medium-----	7	The best; but some thought 8 mm. better; one measuring 6 was not too flexible.
Baby carriers ² -----		³ 8	Good.
Do. ² -----		³ 7	Passed.
Do. ² -----		³ 10	Unnecessarily thick; did not look well.

² Partly flat, partly round coil.³ For round coil.

From this table it would seem that coils 5 to 6 mm. in diameter (in most of the baskets 6 mm.) are considered to be the best size for small baskets, irrespective of shape or purpose. The coils of fancy baskets range around a diameter of 5 mm., although smaller ones are not objected to. In medium-sized baskets 6 to 7 mm. is a good coil diameter, while the larger, heavier baskets require 7 to 8 mm. For large .stlūk or storage baskets coils of 8 to 9 mm. are considered not too thick. One with a coil which appeared to be about 10 mm. thick (though not measured) was condemned as being unnecessarily clumsy. No difference is discernible in regard to size of coils for the different divisions of the tribe, and it seems the people are not aware of any. The differences in size of coil and rigidity are all individual within the Thompson area, although Lillooet baskets are usually as a

class of much heavier coil. One tray made by a Lytton woman has coils 4 mm. and stitches about 2.5 mm. wide, while the coils of a rattle from Spuzzum are about 3.5 mm. and the stitches about 2.3 mm. wide. These are considered by all those consulted to be of fine workmanship or, as they say, good examples of a "thin hand." Occasionally near the rims of baskets the coil, instead of being laid flat and sewed to the previous coil, touches it only at intervals, being pulled up into loops and wrapped instead of sewed where it does not come into contact with the preceding round. This style of finishing the rim will be taken up in detail under the section entitled "Structure of baskets." It is sufficient to note here the occasional increased size of such looped coils or of the horizontal ones which sometimes top them and act as the rim proper. Greater durability is vouchsafed as the reason for the larger diameter, as it is in many similar cases.

Of 10 trays measured, 2 had plain rim coils thicker than those composing the main part of the structure. Their diameters are given.

Basket No. 1.—Rim coil 8 to 9 mm.; others 6 mm.

Basket No. 2.—Rim coil 8 to 9 mm.; others 7 mm.

Two had looped tops which differed in size from the rest of the coils.

No. 1.—Average coil 5 mm., loop coil 3 to 4 mm., rim coil 6 mm.

No. 2.—Average coil 7 mm., loop coil 8 mm., rim coil 7 mm.

This second basket had low, abruptly sloping sides, and the coil where sides and bottom met was rather thick (8 mm. in diameter). Trays more frequently had coils of uniform thickness throughout, while other forms often displayed rims thicker than the rest. Again, many loopwork rims were thinner than the body, so it is not justifiable to make any generalization in regard to this point; but whatever may have been true of these special parts, the coils in the walls are as like each other as handwork will permit.

One spa'nêk basket was peculiar. The bottom was of round coils averaging 7 mm. in diameter, while the coils of the connecting part of the lower side walls were 8 mm. From this point on, the sides of the basket consisted of slats of wood combined with splints in the same wrapping, lending a pronouncedly corrugated effect and creating a unique "coil" the cross section of which was triangular. The splints were laid on the slats on the inside of the basket. These coils averaged 12 mm., while the rim, which was round, was about 7 mm. in diameter. The maker said she used slats in order to build up the sides more quickly, though it is not clear how this could have been accomplished, as there was almost as much sewing to do as when pursuing the old method, and the building up of the coil by means of splints on the inside, to say nothing of preparing the slats, required no little time. It seems rather that a saving of splint

material was involved. Her other reason is more intelligible, namely, that she wished to ornament her coils with a beading which ran under and over the wrapping stitches and which was composed of wide strips of bark, necessitating a wide, flat coil surface. She used rather coarse splints for padding so as to make the walls thicker and stronger.

The finest specimens of workmanship show about four or five stitches and three coils to the centimeter. On most baskets of modern make there are about three stitches and two coils to the centimeter, but a few of the best examples of fine work have four stitches and two coils to the centimeter.

STRUCTURE OF BASKETS

Although long ago the baskets were confined to a few simple round shapes, at present forms of great variety are produced.

Ordinarily the world over coiled baskets have rounded forms. Within the last few generations, however, in this area, a remarkable development of elongated shapes with rounded corners has arisen. Later these became more and more angular until a type of basket was produced which resembles an inverted truncated pyramid of rectangular cross section. Many of these later types are evidently copies of utensils and receptacles of foreign origin. Their reproduction in this kind of basketry technique calls for no small amount of ingenuity and skill, even were the basket undecorated. It leads to still more complicated processes when the ornamentation in woven designs is taken into consideration.

COILED BOTTOMS ¹⁶

When working, the majority of the women squat on the ground or the floor with feet underneath the body (pl. 2), resting the basket on the lap, although occasionally they sit with feet extended in front when tired. Others do this habitually, holding the basket on the lap or knees. The position is not fixed, but altered from one pose to the other as the worker chooses. Those who have adopted the white man's habits often sit on chairs, resting their work on a low table. When making a large basket, informant 25 lets it rest on the ground, while she sits on a low seat.

In the discussion on structure it seems best to begin with the bottom, since a basket is always started at the bottom and the shape of the base determines the cross section of the basket. There are two general types, the coiled and the slat bottoms. No checkerwork bottoms have ever been woven by the Thompson. There are several varieties of the former type which are classified according to the

¹⁶ For other discussions see C. Hill-Tout, *The Native Races of the British Empire, British North America*, I, p. 114; and O. T. Mason, pp. 435 and 436, pls. 68, 163.

kind of coiling or the shape attained. These are the watch spring (pl. 3, *a*), elongated watch spring (pl. 3, *b*), and parallel coiled (pl. 3, *c*), as well as several others employed for fancy shapes, such as triangular and heart-shaped coiled bottoms. Slat bottoms are always composed of parallel slats of wood, but there are many different ways of fastening these together and to the walls of the basket. These methods will be treated in detail when the slat bottoms are described.

Irrespective of the shape of basket to which it may be applied, the watch-spring coil is always started in the same way. A simple knot is tightly tied at one end of a bunch of coil splints, after the ends have been made even (fig. 3, *a, b*). The knot is tied by using the fingers and thumbs of both hands. The short ends of the splints which project beyond the knot are then cut off close with a knife or scissors (fig. 3, *c*). The knot is then held by the first two fingers and thumb of the left hand, while with the right the sharp point of a sewing splint is passed through its center away from the person holding it (*d*). If the splint does not penetrate easily, the awl is

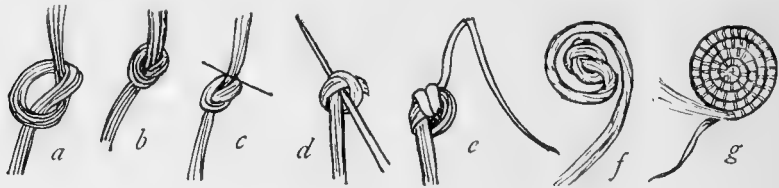


FIG. 3.—Beginning of coiling

used for enlarging the hole. The splint is then pulled through with the right hand until the rear end has almost disappeared, when it is brought back up over the knot toward the worker, and passed through again to the right of the first stitch, and the loop thus made around the bundle of splints is pulled tight (fig. 3, *e*). This process of sewing is exactly like overcasting, except that the sewing material is carried over the work toward the person and passed through it away from her, rather than vice versa. The knot is thus completely wrapped by the sewing-splint. When the protruding long end of the bundle of splints is reached, it is bent sharply down around the knot to the left by all right-handed persons, as shown in *f*, or to the right by left-handed workers, and stitched to the center knot by the same process of overcasting, the awl now being used to make holes for the stitches near the outer side of the covered knot; and thus the sewing is continued, the coil going around and around until the bottom is finished (*g*). Since this is flat, the awl perforates the coil at right angles to the plane in which the bottom is held. Usually it is held vertically, and worked from what is intended to be the outside, which is toward the maker. As the work advances

it is turned to the left on its edge, and the sewing progresses toward the right. A few individuals start the "watch spring" with a coil finer than the one they intend to employ subsequently, but this is not a general method and is not essential to good workmanship. Plate 3, *a*, shows a bottom of this type. (See also Mason, pl. 68.)

The elongated watch-spring type, of which Plate 3, *b*, gives an illustration, is commonly used on baskets which are roughly rectangular. In starting this variety the ends of the coil splints are evened and that of the sewing splint is laid diagonally across the coil near the end on the side toward the weaver, with the long end falling downward to the left (fig. 4, *a*). The splint is then carried around behind the coil and up over it and down slightly to the right, crossing itself (*b*). This keeps it from unraveling later.

The sketch shows the wrapping placed at slightly more of an angle than really occurs. Then the binder continues in quite the same way as the sewing—down, and around behind, up and over to the right, until a sufficient length has been wound (*c*), when the rest of

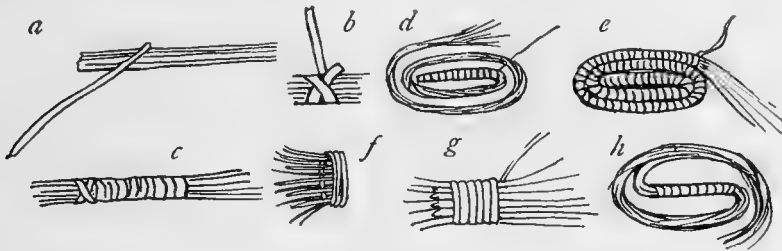


FIG. 4.—Beginning of coils for elongated watch-spring bottoms

the coil is bent around to the left (*d*), and sewed along one side, the wrapping now becoming the sewing element. When the original end is reached the coil is bent around it; and if there are any loose splints protruding where the wrapping began, they are now incorporated in the encircling coil, and all is sewed down to the other side of the wrapped section. The process is continued around and around until the bottom is large enough (*e*).

Another method of wrapping starts by inclosing the wrapping splint in the bunch of coil splints, but having the inserted end free in the opposite direction to the end of the coil (fig. 4, *f*). All the ends are then held firmly with the fingers of the left hand, and the wrapping splint drawn up through the coil and bound around it in the same way as in the first method (*g*). Both schemes seem to be in common use, some women using one, others the other, while a few apparently employ both, indiscriminately. Sketch *h* of the same figure shows the method of incorporating the loose ends of the coil splints in the encircling coil when the splints have not been cut off and evened.

A second way of starting the elongated watch-spring type is by folding over the end of a bunch of coil splints and fastening the folded section to the adjoining part of the bundle by twining (fig. 5, *a*). From the finishing of these two sections the work proceeds as in the first kind, the ordinary sewing beginning at the second bend. In still another type which is round a short part of the coil is wrapped before the winding begins (fig. 5, *b*, *c*). At first the coils so started are rather long for the proposed width of the finished bottom, but by thickening them on the long sides as the work progresses, a circular form is soon obtained, so

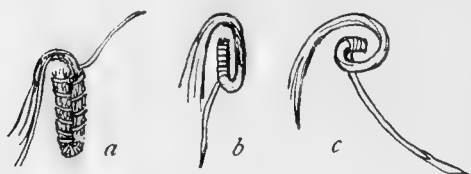


FIG. 5.—Beginning of coils for elongated watch-spring bottoms

that what starts as an elongated watch spring is finished perfectly round (fig. 6). This kind of bottom is not considered as neat or durable as a regular watch spring, and is more liable to leak.

Some Lytton informants say that probably long ago all bottoms of baskets were of the watch-spring type, excepting perhaps those in some of the large and small .stlūk. As the bottoms of these were very long and narrow, they were probably made of elongated or parallel coils, each woman having a preference for one kind or another. Some tried the various forms and later adopted one for general use, while others simply followed in their mothers' or grandmothers' footsteps and used the kind they had been taught to make, many never changing their habits to any extent.

There are two kinds of parallel coiled bottoms—those in which the parallel coiling constitutes only the central part, which is then surrounded by several rows of spiral coil (pl. 4, *a*) and those in which they form the whole bottom with the exception of one or two encircling lengths (pl. 3, *c*). Aside from this, there is practically no difference between the two, hence they are treated here together.



FIG. 6.—Round bottom developed from elongated watch-spring coiling

The parallel coiling is begun by doubling the bunch of splints in the middle and bringing the two ends together. A splint is wrapped a few times around the coil at the bend, and then woven back and forth over and under the two sections until they have been joined for the distance the worker desires, or approximately the proposed length of the bottom (fig. 7, *a*). A slight variation is obtained by wrapping a piece of coil and bending this in the middle, uniting the two sides by twining. In either case the rest of the technique is as follows. One end of the double coil is bent back along one side,

and sewed to the wrapped double coil until the original bend is reached (*b*), when it is doubled back in the opposite direction (*c*) and sewed to the finished portion. This process is continued until one-half of the proposed width of the bottom is completed. The other half is made in the same manner, with the remaining part of the original double coil; and the last time, when one side of the base has been reached the coil is carried around past the bent ends to the other side (*d*). There the loose ends of the coil of the first half are picked up and incorporated with the coil which now becomes the main spiral. Good basket makers are careful to cut out enough splints at this point so that the foundation will not be too thick, thus causing a lump, which would spoil the appearance of the whole basket. Figure 7, *c* and *d*, show two ways of incorporating the coil. As the spiral is carried past the parallel coils, the ends of which consist in a series of loops, these are caught in the sewing and thus all is bound together. Along the sides the same process continues that was used when joining the parallel coils to one another (*e*).

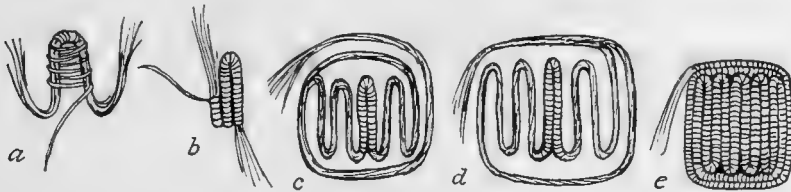


FIG. 7.—Parallel coiling for bottom

A third method of fastening the end of the coil of the first half of the bottom with the encircling coil is to cut the splints off sharply on a line with the bends. When the coil which is inclosing the parallel portion passes this blunt end, the stitches which bind the parts together are run through the last few stitches which lashed this same "blunt-end" coil to its neighbor, and likewise through the end of the coil itself. Because it is at right angles to the sewing, a good hold can not possibly be gained in this way, but if the splint ends are doubled back into the coil itself, so as to form a loop instead of loose ends, there is something to catch into, and a firmer grasp is then possible. Even in the other two methods described above, where the splints of the coil which is to be incorporated are conducted in a direction parallel to the encircling one for a short distance, a few pieces are occasionally bent back into the body of the rest so that a firmer hold may be gained by means of the loops for the stitches which unite the two.

Most of the informants, however, did not seem to know of this plan and either carried the two coils along together for a little way or sewed one to the blunt end of the other.

In the case of a small bottom the original bundle of long splints, which is bent in the middle to start the work, is enough to finish it; but where it is not, additional pieces are added to it, both to keep the coil of even thickness throughout and to lengthen it. The number of parallel coils employed in making bottoms varies according to their thickness and to the size of the bottom, and apparently there is no correlation between this latter and the number of coils. When it is noticed that the work is becoming narrower at one end in the process of manufacture, the coils are enlarged at that place, and if the difficulty can not be thus entirely remedied the surrounding ones are also increased. It sometimes happens that the bends of the parallel coils are not always on a line with each other and it becomes necessary to add short sections of coils at these places along the ends. Plate

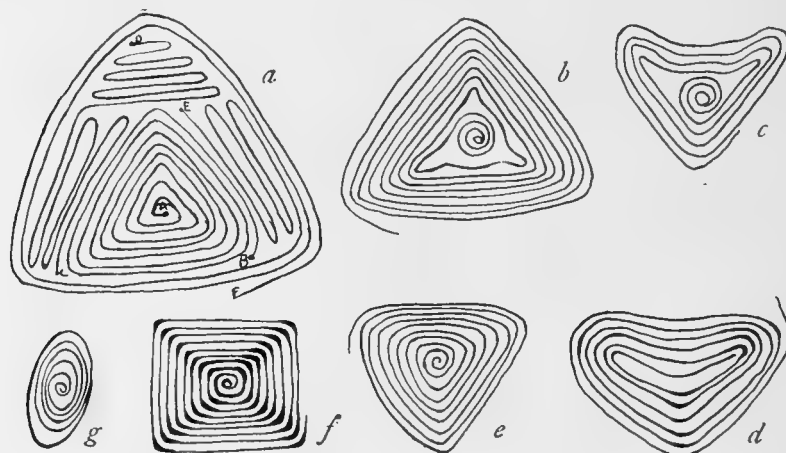


FIG. 8.—Watch-spring coiling adapted to triangular and square bottoms

3, *c*, shows how this has been done. The bottom pictured is rather more poorly constructed than the average. Plate 4 shows by way of contrast two remarkably fine specimens.

Some women were found who make only this type of bottom, but this, it appears, is because they make only rectangular baskets. They know how to make the other kinds as well. Practically all circular baskets are made with watch-spring bottoms, but Plate 6, *b*, shows a rare variant.

The watch-spring type is also used for baskets which are almost square, triangular, or heart-shaped. Figure 8 and Plate 3, *a*, *b*, show the method of treating the coils and also the increase in thickness where that is necessary. A few women regularly bifurcate the stitches extending outward from the center to the corners for the purpose of ornamentation.

An interesting criticism of the kind of bottom shown in Figure 8, *a*, was elicited from some basket makers who thought that the woman

who made it must have had great difficulties, and that the result of her labor was very poor. They decided that it should have been made like *d* or *e*, either of which is much simpler and better. The methods employed in manufacturing the bottoms shown in *b* and *c* were considered much superior to that for *a*, but not as suitable as those of *d* and *e*. An especially successful plan for heart-shaped forms was thought to be *d*, but equally serviceable for triangular baskets; *e* was considered by many women to be best adapted for triangular bottoms; *f* was said to be the proper type for a square basket, while *g* is used for oval shapes. Figure 8, *f*, shows the formation of a square bottom of watch-spring type. It is made by increasing the thickness of the coils at the corners.

As before stated, the elongated watch-spring coil is chiefly used on medium-sized burden baskets, but it is just as popular for oblong trays, and is occasionally found in baskets of other odd forms. Bottoms consisting of parallel coils may be employed for any rectangular or elongated shape. On specimens of each of these types there is sometimes added a medial line of sewing running lengthwise, after the bottom has been completed, which serves as ornamentation and also helps to hold the coils firmly together. The women consider the parallel coiled bottoms best for large burden baskets because they are stiffer. The elongated type is apt to sag. There is no correlation between the type of base and the ornamentation applied to the walls.

Flat-coiled sections are apt to warp in the process of manufacture, particularly as they rest on the rim while being sewed. To avoid this the material is moistened at frequent intervals, either by being dipped in water or by being sprinkled or rubbed with the wet hand. It is then bent back into shape. When finished, especially if the piece is large, it is placed wet between two boards, and weighted with stones. Thus it remains for a day or more, until it has dried and is perfectly flat and rigid, when it is considered in the right condition for adding the sides. A warped bottom is shown in Plate 5, *a*.

A common device for straightening the bottom is by the attachment of crossed sticks to the outside, either two, crossing each other diagonally from opposite corners (fig. 9, *a*), or four, the second pair being fastened across the ends (*b*). When two or three coils of the sides have been finished, two more crossed sticks are braced inside against them (*c*). All these are usually removed after the bottom has set, but Plate 5, *b*, shows that two straighteners have been retained. Rarely, also, spreaders are placed between the sides of the basket. The popularity of these devices varies with the different women. Some do not need them, merely adjusting the shape with their hands, or they may use one or all of those described.

The bottoms made by certain women are "good to see," being smooth, closely worked, with all the coils completely covered; while others are rough and poorly constructed, because of carelessness in the selection of materials as well as in workmanship. The Upper Thompson seldom make any but round coils. Slats or flat ones are more favored by the Utā'mqt. Their slats are generally thin and double, and no wide single slats were known formerly, it is said. There is an impression abroad that such slats would not be strong nor would they look well. Flat coils, which are now and then substituted for slats, entail less labor than round ones.

As for the Lower Thompson, the baby carriers always had slat bottoms, the slats varying considerably in width, although narrow ones were preferred; or else flat coils were put in the bottoms and round ones in the sides. The latter kind is probably the older type in both areas. Different bottoms are not characteristic of separate bands, but belong to a certain extent to individuals or families, which may manufacture several varieties.

SLAT BOTTOMS

Slat bottoms (pl. 6, *a, c*), according to many informants, both men and women, were not used by the Upper Thompson years ago,

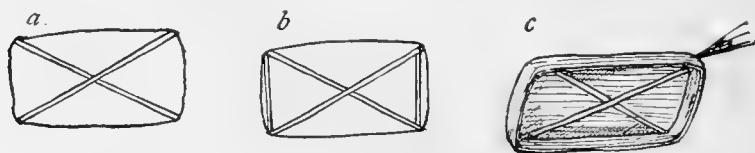


FIG. 9.—Devices for straightening bottoms of baskets

but were copied from the Upper Utā'mqt, who probably adopted them from the Lower Lillooet. The Thompson east of Lytton have only used them since about 1885. There are three types, all of which require slats made of sap, heart, or other wood which splits easily into thin sheets. The slat may consist of one or of several pieces, according to the thickness wanted or to the available material, but where there is more than one layer they are very thin and are laid flat on one another. Usually not more than three are so combined and they are always the full length required. It is claimed that slats were spliced, but it is probable that examples of such splicing are rare and found only in baby carriers.

Among the Upper Thompson the opinion prevails that sapwood and dry cedar slats are not suitable for the walls, therefore in baby carriers and the like, the sides of which have recently been made of slats also, they are often of cedar roots split in wide, thin pieces, while the ordinary kind of slats are used only for bottoms. It is said that among the Lillooet root slats are preferred for all purposes.

In carriers or in round or oval shapes where the width across the middle of the base is greater than that across the ends, the slats lying on the outside are left full width through their centers but are shaved off toward their ends to assist in gaining the tapering form.

Normal, straight slats often show considerable variation even in a single bottom, but careful workers try to have them uniform. There is no correspondence between their width and the size or kind of basket to which they may be applied, as may be seen from a few measurements which are given here:

Basket	Width of slats
1. Tray.....	18 to 20 mm. wide.
2. Small burden basket.....	22 to 26 mm. wide.
3. Small burden basket.....	About 12 mm. throughout.
4. Large box-shaped basket.....	10 to 14 mm. wide.
5. Small box-shaped basket.....	13 to 15 mm. wide.
6. Baby carrier.....	16 to 18 mm. wide.
7. Baby carrier.....	About 18 mm. throughout.
8. Baby carrier.....	15 to 22 mm. wide.

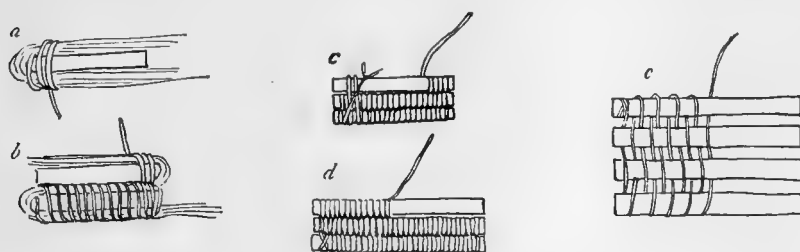


FIG. 10.—Methods of making slat bottoms

In the first of the three types mentioned before the bottom is started by surrounding the slat on two sides and one end by a bunch of coil splints equaling the slat in thickness. The ends of the splints extend beyond it to several times its length. Slat and splints are next bound together with a wrapping, beginning at the end over which the bunch of coil splints has been bent (fig. 10, *a*). When the whole slat has been wrapped, another is placed beside it, and one of the two parts of the bunch of coil splints is bent back around it. It is carried up along the bare outer side. The splint which served to wrap the first slat with its accompanying padding is now employed to sew the slats together (fig. 10, *b*). The awl punches the holes in the wrapped padding lying between the two slats. A third slat is added in the same way after the first two have been sewed together. The inclosing padding thus forms loops as in the parallel coiled bottoms, with this difference, that between each coil there is a slat, only one end of which is inclosed, so there are along top and bottom of the rectangle alternating covered and bare slat ends. The first piece of wood that is wrapped forms the center of the base, and as many more as are necessary are added on either side, first one whole half being completed, then the

other. The padding or coil on one side of each slat, which is incorporated with it in the same binding (fig. 10, *b*), furnishes the hold for the sewing material which penetrates it. Sometimes, however, the sewing splint merely interlocks with the stitches binding the previous slat. When the bottom is sufficiently large, the remaining part of the bunch of splints belonging to one half is carried across the ends of the slats to the right as in the case of parallel coiled bottoms. It conceals as best it can the exposed as well as the covered ends, and when it reaches the loose splints which served as padding on the other half of the bottom, these are gathered into the encircling coil, in the manner described before (p. 171), and the process of sewing around the bottom is continued. During this process the bottom itself is turned to the left as the sewing moves to the right, just as in the other types.

This particular variety is not much in favor, and although several women know how to make it few of them put their knowledge into practice. The only advantages afforded by it are that it requires fewer splints and much less time, and that greater flatness is obtained than with parallel coiled bottoms. The Upper Thompson consider it very inferior and less durable. They say that only a few can make it well and finish it neatly across the ends, which is indeed a difficult problem on account of the irregularity of line of the ends along which the encircling coil must pass and to which it must be fastened. One woman who manufactures this variety oftener than her neighbors has partially solved the difficulty by placing the alternate slats a little out of line, so that the exposed ends are even with the covered ones. She also at times divides her splints where they bend around the ends so that some of them may be deflected in order to conceal the bare places. After this purpose has been accomplished, the remaining pieces are turned in, caught by the sewing splint, and sewed between the slats. She does not do this every time, but apparently only when she fancies that it is needed. It is an invention of her own.

Several methods of treating the ends are in use by the other women. Some bore a hole with the awl through the bare end of each slat, and passing the sewing splint through this, fasten it firmly to the encircling coil as it goes by. But as the wood is liable to split, especially if it is brittle, longer stitches are sometimes taken, the perforation being made down where the slat is covered with wrapping; thus, even if the wood does split, a better grasp is obtained and the stitch can not pull out at the end.

The second type of slat bottom resembles the first except that the slats are not inclosed by a bunch of splints which so effectually assists in sewing them together; but one slat is bound with a splint as in type 1, and the rest are sewed to this and to each other,

the stitching around a new slat interlocking with that of the previous one (fig. 10, *d*). If the slats are very thin and pliable, and green or well soaked, the holes for the sewing splint are sometimes made in the edges as well.

The work is often begun at one side, instead of in the center, and the bottom built straight across; hence it consists as often of an even as of an uneven number of slats. However, it is said that it may just as well be started in the middle, and that in such a case there is less tendency to warp. The first type may be begun from the side if desired, which would bring the wrapped slat to the edge, but this is not usually done. In sewing slats together at one end, the opposite ends tend to fly apart; therefore they are lashed together at their far ends until nearly sewed down, when the binding is removed. (Fig. 10, *c*.)

The distinguishing feature of the third type is the twining by which the slats are held to each other, a woof splint passing over one and under one in the manner shown in Figure 10, *e*. This kind of bottom is quite unpopular, although there are Thompson and Lillooet women who occasionally make it. As none of the informants who were interviewed knew the mode of procedure involved in its manufacture, detailed information was not obtained, but two reasons were given for its infrequent appearance, namely, that it is apt to warp and that the slats are liable to drop out of line. The Thompson are said to have acquired the idea from the Lillooet. Farther to the east the use of slat bottoms is entirely unknown.

The bottoms of the second and third types are always made separately from the rest of the basket. In these all the ends of the slats are bare and the first encircling coil is often thicker than those which follow, because the ends must be completely embedded in it and the perforations in them through which the sewing splint goes are placed farther away from the end to avoid splitting the wood.

On some bottoms, before the surrounding coil is added, the ends of the slats are sewed together, by starting in the space between the slats, about 1 to 2 cm. in from the end. (Fig. 11, *a*.) The splint is drawn through from front to back, whence it passes up over the end of the slat, crossing it at its center, and obliquely down to the right on the front side, to a similar point in the next interslat space, where it is again drawn through to the wrong side. Thus the process continues. When the opposite corner is reached, it is sometimes brought back across the bottom again in the same way, so that the stitches cross each other in the middle of each slat and the effect is that of a zigzag. (Fig. 11, *b*.) When two splints are used each way, then the four intersections at the end of the slat form a series of triangles. (Fig. 11, *c*.) If the surrounding coil is not thick enough to hide the slats completely, these crossing stitches are often split by the sewing

splint as it binds the coil to the bottom, and this so spreads them that the bare ends are almost concealed. The regularity of the stitches imparts quite an ornamental effect which the women strive to obtain, but if the work is done inaccurately it appears as an unavoidable blemish.

Two other methods of stitching the ends of slats are in vogue. In one the slat is perforated in the center by means of an awl about 2.5 cm. from the end. (Fig. 11, *d*.) Otherwise the result is the same as in the former method, when only one line is carried across the ends.

In the third the encircling coil is sewed to the ends of the slats by one or more stitches taken every time that the space between the coils is reached. These pass through the binding quite a distance away from the ends for the purpose of ornamentation as much as of securing the coil. (Fig. 11, *e, f*.) Plate 6, *b, c*, show these methods on beautifully constructed bottoms.

As a rule slat bottoms of the second and third types which are made separately from the basket have several rows of coils built

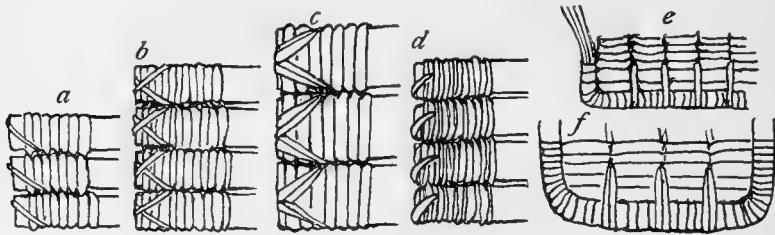


FIG. 11.—Methods of making slat bottoms

around them before the side walls are started. Very angular shapes which have a "foot" to keep the bottom from resting on the floor form an exception to this. Either face may become the outside, so during its construction the worker turns it to suit her convenience, but the direction of the sewing is always toward the right.

The women give two reasons for adding the encircling coils. The first is that they consider a sharp turn from bottom to walls to be bad artistically; in fact, absurd for burden baskets. In some Lillooet examples of this shape it is said that only about two-thirds of the entire bottom is made of slats, the rest being of coils which in curved alignment connect the plane of the base with that of the sides. When the Thompson use slat walls they experience great difficulty in securing the proper, gradual rounding between the two parts of the basket and always employ coils at the curve.

The second reason given is that starting the sides with such a sharp angle would create an edge between the bottom and the walls which would soon be worn, because when the basket is handled and knocked about the point of wear would always be along the same

coil rather than distributed over a curved surface. It might be supposed that when such an angle is created the coil at the corner would usually be made thicker for the identical reason given concerning rim and other coils. One woman makes all the coils of the bottom thicker than those of the sides, but none of the others do so. Informants Nos. 4 and 5 laughed at the idea of increasing the diameter of any coils, saying that this did not improve the wearing quality as the sewing splints are the first to break, and when the bunch of splints is exposed it soon drops to pieces. If the sewing splints were thicker, they said, that would be a different matter, but no one follows the practice of making them so. It must be confessed that very few display such reasoning ability as these two women, but give voice to the first ideas that occur to them.

Sometimes coils which are exposed by wear are reseed with new splints, the stitches passing through the edges of the coils above and below. The sewing on slat work is not tapped with the awl to drive it home as is the case with coiled work.

SIDE WALLS

According to our ideas, the bottom stops where the sides turn upward, but in the mind of the Indian woman the line may be beyond the curve, slightly up the side walls, although this is not always the case. At the place where the bottom is considered to end, a line of beading is run along the coil, to set it off from the side walls. The beading consists of a strip of bark passed along the entire coil, every alternate stitch of the coil passing over the strip, the others going under it. Occasionally double lines of beading are used. When the bark is of a strongly contrasting color the effect is very pleasing and the women liken it to a string of beads.

When the sides are started the coil is pulled outward a very little with the thumb and forefinger of the left hand in order to produce a gradual flare. The awl holes are made pointing slightly upward into the last coil, instead of at right angles to the slant of the work, as is the case in the flat bottoms. Some women direct the passage of the awl slightly backward to the left as well, a procedure which would seem to assist in forming the flare. The proper flare or bulge is determined by custom, but it is also regulated to some extent by taste, and with the less experienced workers certainly it is not completely under control. If a woman begins a basket and discovers after several rounds that it is going to flare too much she constricts the coils, thus creating a quite unusual shape, especially if the change is abrupt. A pronounced flare lessens the utility of the basket, particularly if it be used for carrying purposes. The degree of slant is entirely determined by the eye, and it is remarkable how closely the women adhere to the tribal standards. Sometimes a basket may,

when finished, flare more than the maker intended, but usually it is not enough to spoil it; and with an experienced woman who does good work such accidents rarely happen.

When the sides are being built the bottom inclines toward the maker, the upper edge being the nearest. As the work progresses special care is taken to place each succeeding coil in the same relation to the preceding one, so that none are too far out or in, for each must be perfectly aligned. Naturally practice aids materially, for beginners frequently have dents and bulges in the side walls of their baskets, not only because the coils are not placed evenly but also as a result of nonuniformity in their diameters, which creates waviness in a vertical direction (pl. 7, *a*, and the Chilcotin basket, pl. 7, *b*).

Sometimes, as the basket nears completion, it will be seen that it is lower on one side than on the other, and it is then too late to correct the shape by increasing the diameter of each coil, thus gradually remedying the fault. The maker then has recourse to the expedient of splitting the coil near the rim, as the sewing approaches the low spot. From one coil she creates two of the same size, by working in additional splints, and the blemish is thereby rendered less noticeable than if one very large coil were used instead. The defect may also be remedied by tapering down a coil and then beginning again with a wide coil which is adjusted so that the upper line becomes straight (see pl. 7, *c*).

No Thompson or Lillooet baskets were made with the ends higher than the sides, which was a common feature of Chilcotin work (pls. 7, *b*; 8, *a*). Rather, every effort was put forth to secure an even height.

A very peculiar feature in the structure of the side walls is brought out particularly well in the photographs, especially in those which show the bottom, such as Plates 3 and 4, and in many others which give the full view of a long side, but in which nevertheless a slight part of the right end may be seen. In these plates it is clearly shown that the corners of the side walls do not radiate from the bottom in straight lines as might be expected, but in curved lines running to the left in pinwheel fashion. Some baskets are so much awry that they appear to be very badly warped or at least to have been wrenched around to the left, while the bottom was held fast (pl. 4). Although this peculiarity is not noticeable in all cases, it is practically always present to a greater or less degree in Thompson baskets having corners. The reason is unknown, unless in working to the right and paying particular attention to the corners, quite justifiably when all the difficulties in decorating this part of the basket are understood, the workers unconsciously begin to turn a little ahead of time, each round.

In oblong baskets the spiral coil always ends on one of the long sides near a corner. This is a very old custom and still holds. It is also true for all oval shapes. On a burden basket the side on which the coil ends is always placed next the bearer's back and the loops which hold the pack straps are adjusted accordingly. This is also an old custom. One informant states that as baby carriers are always held so that the head of the child lies toward the right hand of the bearer, the coil should always end on what would be the baby's right side as it lies on its back. No reason except that of custom has been obtained as to why the finishing point on a basket should not be exposed in carrying.

RIMS

There are three types of rims—plain, braided, and loopwork—and the last named has many variations. The current opinion among the people is that the plain rim covered by the ordinary "overcasting" is the oldest type. Certainly it is the most common one. A heavier foundation frequently, but not always, distinguishes the rim coil from the others, the usual reason given for the increase being that thereby additional strength is gained. But, as was indicated before, there are individuals who realize that the dimension of the coil has no effect upon its wearing qualities. There are also two kinds of plain rims, the one which is merely a continuation of the wall coil, and which is finished off usually by a gradual reduction in size until it disappears almost imperceptibly; and the ring coil, with which this ordinary ending is sometimes capped. The ends of the ring coil are spliced together, and the whole is covered with the sewing splint so that the joint is completely hidden. To make a ring of exactly the right size and to conceal the joint demands very neat execution. On some specimens there are several of these rings, one above the other, but the number depends entirely upon the fancy of the maker. They lend a much neater finish, and if the wall coil is properly graduated in size, the top is practically horizontal. Figure 12 illustrates the finishing point of the spiral coil and shows two ring coils above. In spite of their merits, they have not been universally adopted, and many have attempted them only within the last few years. The Lower Thompson, according to their own account, adopted them

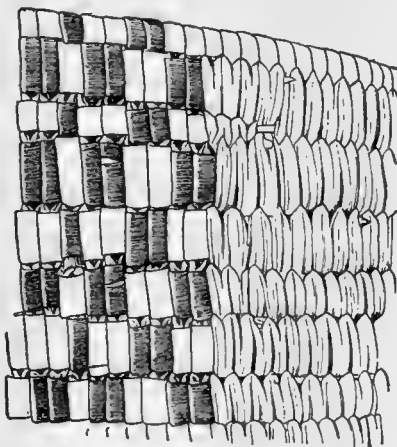


FIG. 12.—Rim consisting of two ring coils

very recently, and it is doubtful if their use is ancient in any of the tribes. It is known that the Nicola did not have them long ago, but reliable information for the rest of the people is not available.

Braided rims are common on Klickitat baskets, and probably also on those of the Cowlitz, Nisqualli, Wenatchi, and tribes near them, east of the Cascade Range. Whether they were ever more common there than now is a question. The Lillooet, Shuswap, and Chilcotin do not seem to have made them; but Lillooet information is still fragmentary, while complete data from the Shuswap can not be obtained at this period. According to several informants, braided rims were used by the Lower Thompson and Lytton people, although not as commonly as plain ones, but they seem to have fallen more or less into disuse at the present day, for only one braided rim has been

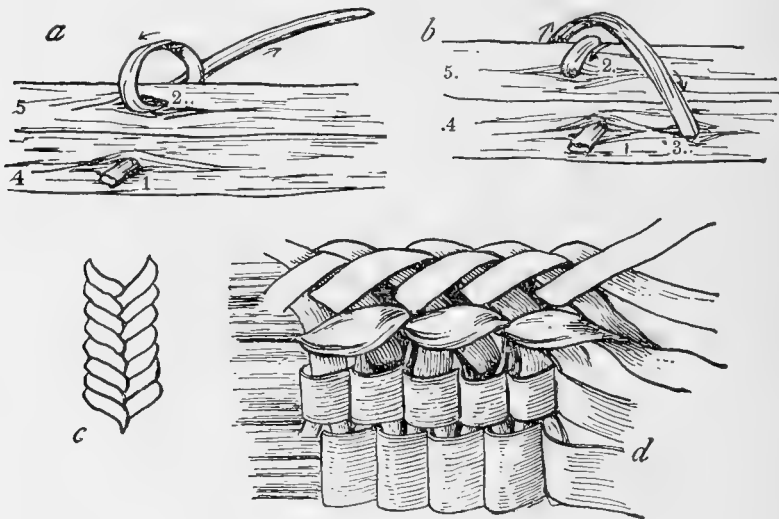


FIG. 13.—Braiding of rim; Klickitat

found in Thompson collections and that has been added on an old basket (fig. 13, *d*). Recent information has it that a few women are again making the braided rim.

From the sketches and specimens of Klickitat baskets it is evident that more than one method of braiding was known. Some informants think that there was only one but are not sure. They stated that formerly, after the rim coil had been sewed on with plain over-casting, a false braid was stitched along the top, to lend additional strength as well as to serve as an ornament; in fact the former reason is more frequently given. One woman, however, feels sure that the braiding was the only sewing which covered the rim coil and that it was not applied afterwards. Although she had never made it herself, she had seen her aunt and a few other people do so when she was a little girl. While a few individuals did such work when they

were young, they have long since given it up, and many have never seen it at all.

As far as Mr. Teit's knowledge extended, in all the rims found braiding and overcasting are one process. The steps involved may be more readily visualized if it is imagined first that the basket is held as during ordinary sewing. The first hole (1), Figure 13, *a, b*, is made with the awl in the coil (4) to which the rim coil (5) is being sewed and the splint is drawn through it, away from the worker as far as desired, usually until the butt end almost disappears in the coil at (1). The length is then brought back up over the rim a little to the right and a hole (2) perforated near the top of the bunch of splints that are being covered (5), almost over the one (1) which has just been made in the coil below. Through this the splint passes again in the direction away from the worker, and after it has been pulled tight (2) it is brought back up over the rim again, this time crossing the diagonal whip stitch which it made before, and coming down to the right, where it penetrates a hole (3) made for it just to the right of the

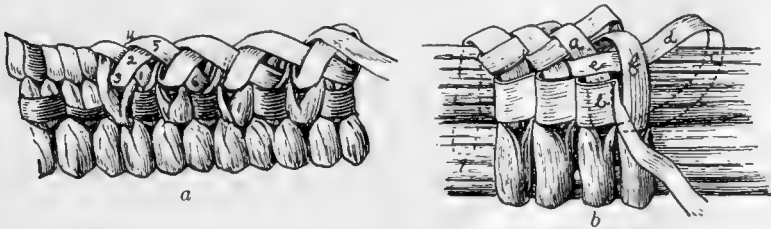


FIG. 14.—Braided rims; Klickitat

first hole (1). From here on the process is repeated indefinitely, always to the right, and a braid stitch is the result. Looking down on top of the rim, the appearance is that of a series of slightly overlapping V's or chevrons (fig. 13, *c*).

Figure 14 shows another variety (Klickitat) where the braiding lies on top of the coil instead of being sewed to it. The lower coil is perforated as before, and the splint is pushed or drawn through its whole length, then brought up over the rim and down to the right, where it enters a second hole made beside the first one (fig. 13, *a, 2*). This gives the necessary "starter," for without the diagonal whip stitch across the top there would be nothing to start the braid upon. After the splint has been pulled through the second hole, however, away from the worker, it is brought up over the rim again (fig. 14, *a, 2*), but this time cutting across it to the left and intersecting the previous whip stitch. Instead of penetrating a hole perforated in the top coil, it merely slips under the first whip stitch which it has just crossed, at 3, and comes out at the intersection of the two, in the angle which lies farthest from the worker at 4; namely, toward the inside of the basket. It now crosses itself again going over the stitch it

just made at 5, which came up over the coil from the bottom and lay to the left and goes down to the right, where it enters a third hole just beside the second one (at 1) perforated in the lower coil. From here on the process is repeated, as described, from where the splint entered the second hole.

Frequently the long parts of the stitches which seem to descend from the actual braiding are covered with twining or imbrication on the outside of the basket, a process which is even more complicated, since these must be put on at the time the braiding is made. Figures 13, *d*, and 14, *b*, show the imbrication.

Loopwork has been touched upon in the section on "Technique of coiling," but may be elaborated somewhat at this point. Rims of this character were used only on fancy baskets and have been in existence for a very long time; but since by their very nature and consequently greater fragility they lessen the utility of the baskets to which they may be applied, in the days when plain and useful baskets were greatly in demand they probably were not much in vogue. Of late years outside trade has called for less classic forms; and loopwork rims on many odd shapes have become very common. But even now a basket of the less utilitarian variety need not necessarily be finished in this manner. Probably the arrangements indicated in the sketches are all of late development.

Occasionally this technique is introduced into the bodies of baskets, generally in the middle of the sides (pl. 16, *a*) and rarely the entire structure is of this type. This is said to be a very recent invention. The Klickitat, Lillooet, Stalo, and western Washington tribes use loopwork; but not the Chilcotin, Squamish, or Sechelt.

Figure 15, *a*, shows a rim made of an extension of the original wall coil. After the finishing point has been reached on the basket the coil is simply wrapped, being stitched to the body only where it comes into contact with it at the bends (2). After this process has been continued all around and the starting point has been reached at (3) the coil is doubled, the two parts being sewed together. From here it is carried along horizontally, touching the loopwork only at the apices, and so returns to the starting point where it is fastened.

Figure 15, *b*, is a common type; *c* is flatter and less frequently applied; *d* and *e* are fairly common, although *e* is less so; *f* and *g* are rare, the latter especially; *h* is a prevalent style but is of two different kinds, loose and tight. When tight, the coils are in such close contact that no spaces can be detected between them; *i* is occasionally seen, both loose and tight. A straight coil running between the loops as in *i* is sometimes used with style *h* in the same way, and again a flat piece such as a ribbon of bark takes the place of this coil. Now and then bands of silk, braids of dyed or natural bark or horsehair, and formerly strips of beaded skin were drawn

through loops on small baskets, by way of ornamentation. Sometimes loopwork is arranged in double or treble series, or there is a combination of these, as in *j*, *k*, and *l*; *m* represents a style recently noticed on a basket made by a Spences Bridge woman. She declared that she had never made this kind before, nor had she seen it. She merely thought of it. Another woman who was interviewed said that it was not new to her, but that it was very little used.

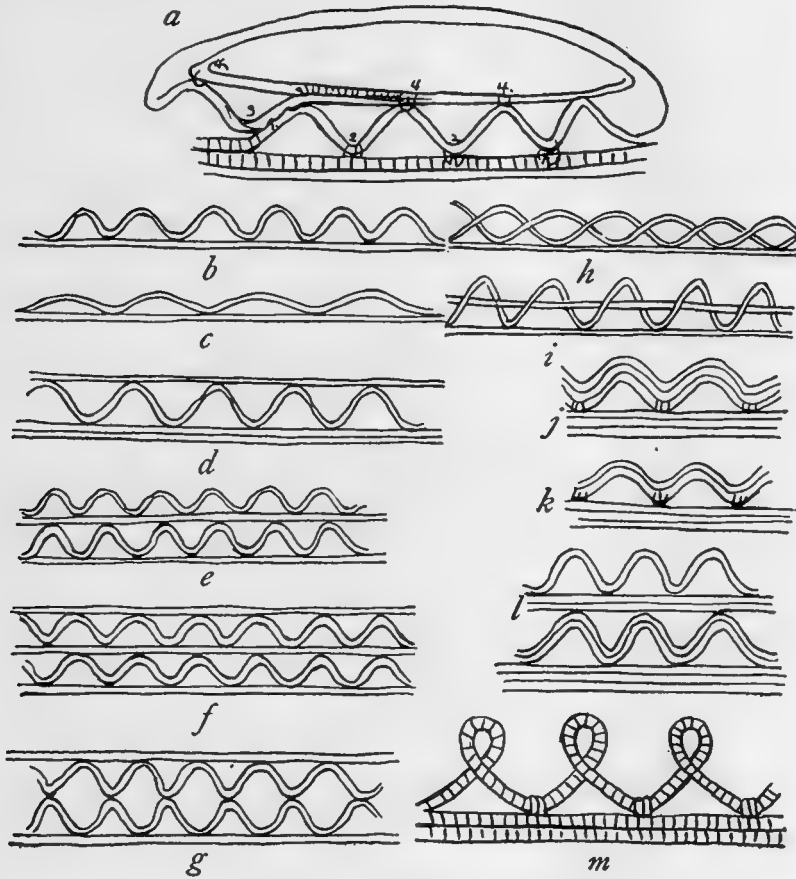


FIG. 15.—Types of loop work

LIDS

Lids made of coiled work are a comparatively late development. Temporary lids for protecting the contents of baskets from dust, smoke, ashes, and insects have probably been in use for a long time. They consist merely of pieces of bark or board slightly larger than the mouth of the basket. Mats are even more frequently used, especially the small eating mats which among the Upper Thompson are woven of rushes, or elacagnus bark; among the Lower Thompson, of cedar bark.

There are several kinds of coiled basketry lids which from the point of view of construction correspond very nearly to the various types of bottoms already discussed. Some varieties are very old, especially Types I and IV, as classified in the following description. These were most often applied to the round or "nut-shaped" and the long trunk-shaped *.stlūk* baskets. Although complete information concerning the construction and fitting of lids has not been gathered it is clear that there are four types which may be grouped as follows:

Type I includes all those flat lids which are fastened to the baskets by means of thongs or hinges of leather or cord, or by means of hinges which at the same time are handles (fig. 16). They are

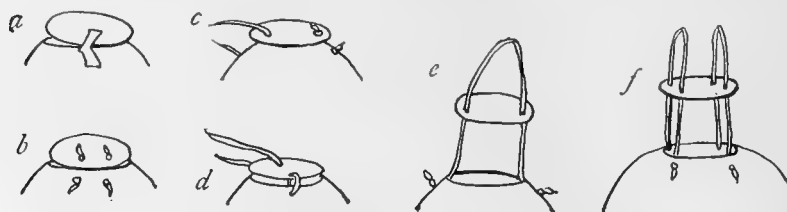


FIG. 16.—Types of lids

- Type I, *a*. Flat, hinged, without flange, resting on the rim of the basket.
b. Flat, hinged, without flange, resting on a basket flange placed near the rim on the inside.
- Type II, *a*. Flat, usually without hinges, with knobs or loops to pull by, and attached flange slanting slightly outward toward its base, and fitting snugly into the orifice. The lid rests on the basket rim, by means of its edges which project beyond the flange.
b. Flat, without hinges, with attached flange slanting inward toward its base.
- Type III, *a*. Flat, but with a turned-down edge which acts as a flange covering an upright collar rim or flange which is sewed to the basket.
b. Conoid shapes, fitting down over rims which are usually supplied with collar flanges.
- Type IV. Flat, and all of one piece of coiling with the basket.

usually slightly larger than the mouths they are designed to cover, so that their edges project well over the rim and prevent the lids from dropping into the orifices. Such covers can be applied to almost any shape, but are most often seen on round or work baskets. Their construction depends somewhat on the shape of the basket for which they are intended. Round ones have lids of watch-spring coiling, started with the usual knot (pls. 8, *b*, *d*; 9, *a*, *b*; 36, *d*; 41, *b*; 50, *c*). In fact, the construction of any of these lids is exactly the same as for the corresponding type of bottom.¹⁷ Oval shapes require usually an elongated watchspring, while the more rectangular forms, such as some *.stlūk*, have lids built of parallel or folded coils (pl. 12, *b*), or just as frequently of slats (pl. 8, *c*). In these last two kinds a number of en-

¹⁷ Round watch-spring coils are also used for more complicated round forms. (See pl. 13, *b*.)

circling coils bound the central portion, which varies from a true center to almost the entire piece. Plates 8, *c*; 9, *c*, and 10 illustrate these lids, which include all types of coiled and slat work, and are classified under one heading simply on account of their shape, their relation to the orifice they cover, and the way in which they are fastened to the baskets. They are Lillooet and Thompson specimens. A variation of Type I is characterized by the following features: The lid is flat, but smaller than the orifice, so that it requires a flange consisting of a few coils sewed around on the inside of the basket near the rim on which to rest. This variety is usually found on shapes which are smaller at the base than at the mouth, such as burden baskets; and is illustrated by Plate 11, *a*. The flange is usually high enough so that the lid is on a level with the rim.

The lids of the second type are of the same construction as those belonging to the first; they are flat and of watch-spring or parallel coils, but possess a flange which is attached to them instead of to the basket. This is made separately of rarely more than two coils, unless the basket is very large, and is either of the spiral or ring variety. Sometimes, instead of this, a flat and fairly broad piece of sapwood is used hoop fashion, and is covered with sewing splints in the usual manner. The flange is sewed very close to the edge of the lid, as the latter is usually constructed so that it barely covers the opening, the slight projection usually not extending beyond the rim coil of the mouth on which it rests.

The flange is made to slant outward a few degrees, fitting the mouth quite snugly and even requiring a slight pressure to push it down, because the bottom coil is just a fraction larger than the rim coil, which must give a little to admit it (fig. 17, *a*, *b*). In order to remove it, it is necessary to give it a quick tug. Loops—or more recently, knobs—furnish a hold. Since such lids can not fall off, only the larger baskets are provided with hinges to hold them.

A variant of this type (II, *b*) which is made by a few people, but which has never attained much popularity, has a flange which is deeper than the other kind, usually being built of three or four coils. It slopes inward from the top toward the bottom (fig. 17, *c*), the lowest coil or ring being of a diameter less than the mouth, the highest being slightly wider, so that the lid may be pressed on and held firmly like a plug in a hole. But practically this is not feasible, for, on account of the springy nature of the coil, the lid frequently works out when the basket is moved about. Therefore, it is considered as inferior to the lid with a diverging flange which is used more often now than any other.

The third type ranks second in popularity and includes flat and conoid shapes. The flat variety possesses a flange, but this is not of a separate piece which is later applied to the lid, but is made of the

last few coils of the main part of the lid, which instead of continuing in a horizontal plane, are laid vertically, one below the other at right angles to it, like the walls of a basket in relation to the bottom, if turned upside down (fig. 17, *d*). To fit this, the last few coils of the basket are laid vertically on each other to form a "collar;" for, unlike the majority of baskets having flat lids, those with flanged ones usually have constricted mouths, the approach to which is an almost horizontal shoulder, on which a flanged lid of the third type would slide about unless supported on a collar.

There are several variants of this group, which are not sufficiently different to be placed in subclasses. With some the flange slopes outward, the supporting "collar" inward (see fig. 17, *e*). Occasionally the flange is made in a separate piece and then attached.

A variation which in the main is like the first kind described under Type III is more carefully constructed than any so far discussed. It is used on straight-walled shapes, where, fastened by sewing to

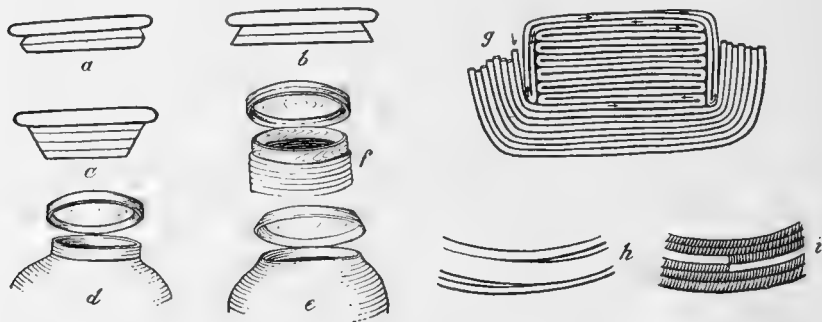


FIG. 17.—Types of lids

the inside of the rim coil, is a thin slat of wood forming a hoop of exactly the right size. It lies on its edge, and over it, a coiled lid with a flange whose coils lie in the same plane as the walls fits so exactly that lid and basket walls seem to be one. The coils are perfectly matched and aligned. Plate 11, *b*, shows a very neat bit of workmanship on a lid of this sort. Figure 17, *f*, indicates the arrangement diagrammatically.

The conoid variety (Type III, *b*) is used on round or oblong shapes. The central part may be of watch-spring or parallel coiling, the encircling coils being gradually carried from a horizontal to a vertical plane in a curve which depends entirely on the eye and taste of the maker. When intended for oblong baskets, the corners are rounded, and the makers claim that the lids are no harder to manufacture than the baskets themselves. Some informants say that the conoid shapes are rather recent. In fact they nearly all agree on this point, but they believe that slightly conoid forms have been applied to nut-shaped baskets for many years.

The fourth type of lid is like the parallel coiled flat lids of the first type, with the important difference that it is made all in one piece with the basket; that is, the coil which completes the walls continues and makes the lid. This is undoubtedly a late development. The procedure involved in its manufacture is as follows.

When the basket walls are completed, the coil is not cut off near a corner on a long side, but having run the length of one side which thereafter becomes the back of the basket, it is doubled and redoubled on itself, very much in the way parallel coiled bottoms are made, only that the lid is necessarily begun from the rim instead of from the center. These parallel coils are a little shorter than the orifice and do not extend to cover its full width. Instead, when a corner is reached at the front of the lid, after a long side has been completed and the maker is satisfied with the width, she carries the coil to the back of the basket, past the loops of the folded coils at one end of the lid, where she doubles it on itself and brings it back again, forward, along the front edge and around to the back along the other end, where she again doubles it back and brings it around the lid. Thus the lid is encircled on its three free sides several times, until the proper dimensions have been attained, when the coil is gradually diminished and comes to an end at the same corner where it began to surround the parallel section. This method of framing the parallel coils keeps the lid flat, strengthens it, and also enlarges it so that it projects over the rim. The sketch and key given in Figure 17, *g*, may be of assistance in elucidating the manner of procedure. Plate 12, *a*, represents a basket with attached lid.

When not made in one piece with the basket, practically all kinds of lids are started in the center, although there are a few exceptions, as in the case of bottoms, where the work may be commenced at the side. But there is another way of beginning lids which must fit exactly over the basket flange at the rim. They are not easy to make, but enhance the appearance of the basket not only as regards alignment of coils, but also, because the direction of the imbrication is retained, which, when the lid is begun from the center, is the reverse of that on the basket. Plate 11, *b*, again serves as the example.

Informant No. 29 told how she and her sister and friends make such lids. After being measured to fit over the flange of the basket exactly the length of coil required is wrapped, and when enough has been covered to encircle the basket the sewing process begins by joining the end to the coil at the point where the wrapping has been completed, so as to start the spiral. From there the bunch of splints is sewed down to the wrapped coil, forming the second loop of the spiral, which is gradually carried to the center.

All the informants agree that this is a recent development and that the knowledge and use of the invention is as yet confined to only a few individuals. There seems to be some doubt as to whether the stitching always proceeds toward the center in the case of lids made in the manner just discussed. One woman thought that the usual method of sewing from the center outward was followed on small lids and was accomplished by first wrapping and basting the coils to one another at intervals until the center was reached, this being done merely to hold them in place. Thus the exact number and size of coils needed to fit into the space bounded by the rim coil was determined, and any adjustment of the size of the bunch of coil splints required to make the center as neat as the rest could be calculated and provided for. The real stitching then commenced at the center and was carried toward the rim, the wrapping being unwound as the stitching advanced upon it.

A process requiring so many operations which were exactly the reverse of those usually employed and which entailed so much more labor makes it seem exceedingly unlikely that many women would attempt it, and makes its suggestion, as coming from a member of the group, all the more remarkable. Unfortunately it is impossible to tell whether such a scheme has or has not been adopted by anyone without observing its actual execution, since the finished product could not be distinguished in any way from a lid which really was begun, coil and all, in the center; and positive observation of a case in point has not been made. Nevertheless the thought through which the idea was evolved is worthy of recording.

Usually, whatever may be the type of lid, the finish of the coil is neatly executed, the foundation material tapering down to a point. If the rim of the basket ends in this manner, the lid is made so that the two pieces fit one over the other (fig. 17, *h*). But on round baskets especially the coils are frequently cut off bluntly, and the ends of basket and lid coils are made to come together so that the effect is that of a continuous spiral (fig. 17, *i*).

Ring coils are also used to finish lids and here, as elsewhere, impart a very neat appearance. It is said by the Lower Thompson that these are a modern development, introduced about 1885.

A small, new, circular shape was made entirely of ring coils, the bottom and lid being of the same construction. These two parts were started with a knot of foundation material which was sewed around with a splint, exactly as when beginning a watch-spring coil, but the long end of the bunch of splints was cut off short and also overcast, instead of being bent into a coil, and the knot was inclosed by the first small ring, followed by others properly graduated in size.

The splint acts as a measuring instrument for comparing the diameter of the mouth of the basket with that of the lid. Where

the shape is oblong two measurements are taken. From time to time the lid is fitted over the basket in order that a better idea may be gained as to how it is going to fit. Every effort is made to effect a neat joining, to the extent of enlarging or diminishing the size of the last coil, but if there are slight irregularities, especially on flat, projecting lids, they are not regarded seriously.

Where there is an upright flange fastened to the inside of the basket rim, over which the lid fits, it is more essential that the measurements be exact, for the diameter of the coils which encircle the flange must be such that the outside edges do not project beyond those of the basket walls (fig. 17, *f*).

The lids of fancy baskets are frequently made of combinations of loopwork and plain coil and are without knobs or pull loops, the interstices admitting the entrance of the fingers (fig. 18). Most of the women make all the types of lids mentioned, but there are some who do not make any, or at least have attempted them only occasionally. Some make only one kind or another.

THE FOOT

Among other comparatively recent "improvements" is the foot, which seems to have come into use about 1800, and which has been applied to fancy and storage baskets where it was thought necessary to keep the bottoms from contact with the floor. By being so protected, the bottom actually does have a longer life and, according to prevailing ideas, the whole basket gains artistically by the addition of this little stand. It has never been adopted for large or medium-sized household baskets, nor for those used for carrying burdens, as it would merely be in the way and would soon become damaged.

Unless it is composed of loopwork, as is frequently the case on fancy baskets, the foot consists of several plain coils added below the bottom, at its edge, which resemble the inception of a second basket, built on upside down (pls. 9, *a*; 11, *a*, *b*; 12, *c*). The number of coils depends on the size of the basket and for medium shapes rarely exceeds two. Too many are considered as evidences of bad taste, for they apparently alter the standard proportions to which the people have so long been accustomed. Therefore, usually a four-coil foot is regarded as being extremely high. Small baskets with a high foot are characterized as foolish looking, but it is said that there can be

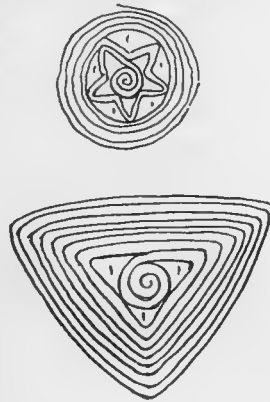


FIG. 18.—Sketches of lids with loopwork

no such thing as too low a foot. It is high enough when the bottom of the basket clears the ground. A protecting foot is preferred to a sagging bottom.

It will be remembered that in parts exposed to wear the coils were constructed with larger diameters. This is also often the case with the bottom coil of the foot.

There are several ways of adding this part to the basket, one of which is to build a separate piece either of spiral or ring coils and to fasten it by sewing to the bottom before the walls are commenced. It may be either of spreading shape or straight but the former is preferred. It is not necessary, however, to sew the foot on before the side walls are begun, but it is easier than attaching it to the complete basket.

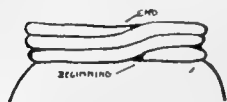


FIG. 19.—Method of making foot of basket

A watch-spring coiled bottom of either the circular or elongated type usually has a separate foot, even though this is not a necessary concomitant. On the other hand, slat bottoms or those made of parallel folded coils more frequently have feet which are made in one piece with the side walls.

The separate pieces built of ring coils are less common because of the time required to splice each ring and to make sure that the joints do not come one over the other. Where the spiral is employed it is begun with a very small coil which is stitched to the edge of the bottom and which gradually increases in diameter as the work proceeds. The sewing is, as usual, toward the right and is caught into that coil which divides the planes of bottom and wall, because

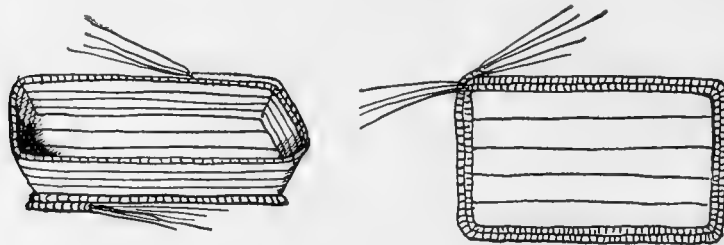


FIG. 20.—Method of making foot of basket

a better hold is to be gained there. When the foot is high enough, the coil is again diminished, so that the decreased portion comes on the same side as that where the work began, thus making a level stand. Figure 19 shows the finished product upside down as it is made.

When the foot is to be made all of one piece with the side walls, as frequently happens on rectangular shapes, a round coil is stitched in the middle of its length to the bottom at or near a corner. The left-hand portion is left loose, to be taken up later, when the foot is started. That at the right is used to build the side walls, which are

carried up a short distance before the work on the foot is commenced. When this occurs, the basket is inverted, and the material which formerly lay loose to the left now lies to the right, in the correct position for being sewed (fig. 20). It is not feasible to divide a watch-spring coil in this manner, for when the edge is reached, the coil is lying entirely to the right, everything to the left being sewed down. To add coil splints in the opposite direction would be as awkward as to bend back some of those already in place.

There are at least two ways of constructing the loopwork foot, especially as far as the final rim coil is concerned. One is to make the loops and rim separately, the beginning and end of the looped coil being brought together and stitched down at the same point, namely, at an apex which joins the basket.

Figure 21, *a, b*, illustrate how this is done. Both ends are reduced in size, and when covered with stitching the joint is practically invisible. The application of the rim coil is shown in Figure 21, *c*. It is begun and ended at the apex of a loop, where the ends are lapped over each other, having been cut down so that together they are no larger than the single coil. Another possible rim is the ring coil,

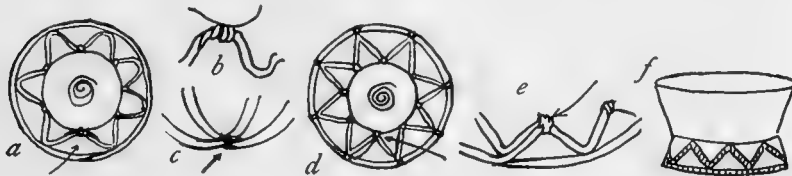


FIG. 21.—Methods of making a looped foot

but in this connection it would be less satisfactory because the joining of the two ends would be necessarily weak, owing to the fact that it is not supported by another coil sewed to it, for the apex of a loop is hardly a sufficient foundation on which to fasten the joint of a ring.

In the second type the loopwork is begun at an apex near the rim (fig. 21, *d, e*), and when the circuit has been completed the coil is brought past the point of beginning, where it is fastened, and then carried around to make the rim, returning to the same point to be reduced and finished in the customary fashion (fig. 21 *e*). Figure 21, *f*, shows the appearance of the completed basket.

About half of the women interviewed could and did make the foot, especially on fancy shapes. A few add this part after completing the side walls, but most of them have adopted the more convenient plan of making it first.

A rare basket is pictured in Plate 13, *a*. Here the bottom is finished with two ring coils which are added in such a way that the inner one seems to result from a division of the coil which made the bottom. The foot is constructed of four rings and above these the basket proper is built up.

HANDLES

Handles are likewise of late introduction but are very common at present, because they are most frequently added on fancy shapes for which there is a constantly increasing demand.

The simplest kind are merely interstices left between the coils where the upper two or three are looped up slightly in the middle of

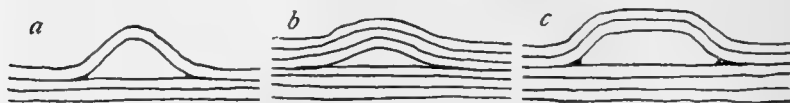


FIG. 22.—Loops used as handles

the wall, to make room for the fingers to enter between them and the coils below. Such openings are also made so that the basket may be suspended from a peg or by a rope. The number of coils so lifted or waved depends entirely on the judgment of the maker, who takes into consideration the size of the receptacle and the probable weight which it will sustain. For trays this type is the only kind of "handle"

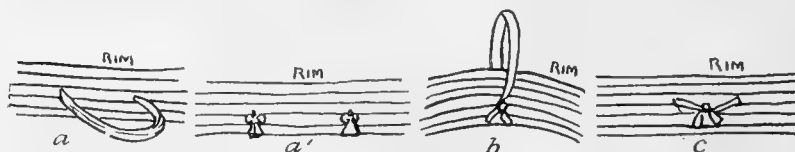


FIG. 23.—Loops made of thongs

used (fig. 22, *a*, *b*; pl. 28, *d*). The angular opening (*c*) is rather uncommon. When the loop is of a single coil, it is thickened in diameter (pl. 40, *c*). This type of handle is said to be very old. Certainly it is widely distributed through the Rocky Mountain Basin region.

There are also loops, thongs, or lugs of cord or leather which are drawn between the coils, by means of holes bored by the awl and

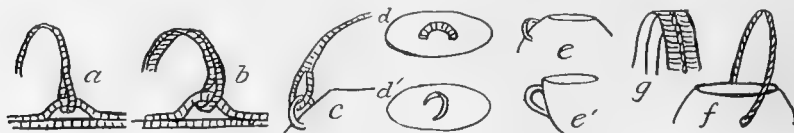


FIG. 24.—Types of handles

tied at the ends with knots to prevent their pulling out. Various kinds are shown in the sketches of Figures 16 and 23. In the latter, *a* and *a'* show the right and reverse sides of one variety; *b* and *c*, two other types. Lugs of iron and wire are modern and require no discussion here.

Real handles of coiled work, attached to the rims or walls, are also manufactured, and these merit some attention.

Occasionally a leather thong was used for the handle foundation, instead of a bunch of coil splints, or even fiber strings, either of which are more flexible and durable than splints (fig. 24, *f*). Where single coils are used (fig. 24, *a*), they are wrapped with a splint, but when they are double, the wrapping is alternately carried from one to the other, or the second coil may be sewed to the first (fig. 24, *b*). The stitches may be held together more firmly by sewing up and down through them for the length of the handle between the coils, as may be seen in Figure 24, *g*. Such coiled handles were passed through a loop made by the rim coil, or else through a leather loop, and the ends were doubled back and fastened to the body of the handle by a tight wrapping and sewing (pls. 14, *a, b, c, e*; 16, *a*; 31, *a*, which are Lillooet specimens, and fig. 24, *a, b, c*).

The Upper Thompson very rarely braided handles of leather thongs, twine, Indian hemp, or horsehair—another widely diffused type.

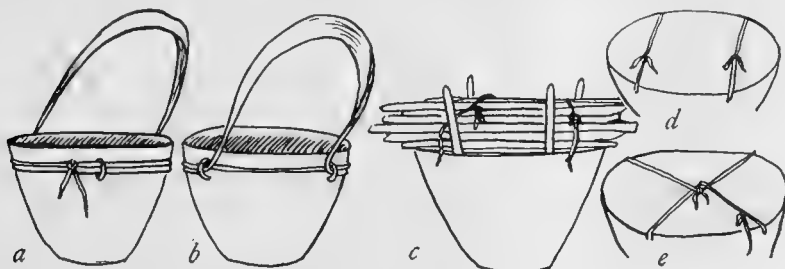


FIG. 25.—*a, b*, Method of attaching thong line; *c*, Load supported by sticks; *d, e*, Tying of top of basket

No wooden handles were employed, such as bent sticks sewed to the basket walls, but some of the Utā'mqt used sapwood wrapped in splints of cherry bark or in quills for the kind of handles similar to those pictured in Figure 24, *a, b, c*.

In addition to these aids in carrying baskets, where there were heavy loads to be transported, wrappings of ropes and withes were bound around the whole bundle to lessen the strain on the handles, and the burden was lifted by means of stout sticks passed beneath them. For carrying on the back tump lines were deemed sufficient.

All handles such as knobs on lids and cups are modern. The lid knobs are made exactly like a miniature foot (pl. 14, *d*), while cup handles and the like are merely short bits of coiled work sewed to the wall of the main structure (fig. 24, *d, e*). Figure 25, *a, b*, shows how the tump line is attached, *c* shows a top load with supporting sticks and ties, and *d* and *e* the methods of attaching strings across the tops of loads.

CARE AND PRESERVATION

The information included in this section is chiefly applicable to the Upper Thompson, although probably it is equally true of other tribes.

When a new, fine basket was much prized, and in the old days such were not lightly regarded, the owner took precautions at the outset to protect it as much as possible from the hard wear which by necessity usually devolved upon it. When rawhide was plentiful a large piece was fastened over the bottom on the outside, extending well up the sides, but in later times this was supplanted by heavy canvas. Such patches were especially placed on baskets used for carrying loads on the backs of horses, where the severe rubbing against the packsaddle, to which they were subjected, would cut short the life of the best coil work. The loads were always piled to the rim, lest the pressure of the lash rope on the partially empty basket would dent or break it. If there were not sufficient contents to fill the basket, brush was stuffed into the remaining space.

Empty baskets were placed upside down on the top of the load and tied to it with small cords. As was mentioned in the section on "the foot" (pl. 14, *b*), the bottoms of those baskets which habitually rested on the ground were protected from contact with it by a few rings of coil. Only the Chilcotin put hoops around the rims, and with them it may have been force of habit, on account of their previous acquaintance with bark basketry and because, later, their coiled ware never attained the rigidity of that manufactured by their neighbors. (See, however, p. 201.) Dirt was removed by scouring and scrubbing with tepid water. At present the people take much less care of their belongings than formerly, another indication of the loss of the sense of responsibility which must be laid at the door of the white man.

REPAIRING

Different methods of repairing have been mentioned, such as calking, putting in new bottoms, resewing coils, etc., so that there is little need of entering into this subject in detail here. Rawhide thongs or bark twine were sometimes used for patching coils or for fastening in a patch of stiff rawhide over the hole left by the wearing out of a bottom. The stitching in such cases was vertical, catching in different coils alternately long and short, like that on birch bark, where the purpose is to prevent its tearing along the grain. Loose pieces of hide, the size of the original bottom, were occasionally dropped inside to protect the bottom, and for these or for new skin bottoms, old *parflèches* were cut up. In a few cases, wooden bottoms, consisting of pieces of board about a centimeter thick, were cut to fit the space, and sewed to the sides by thongs which passed through small holes bored near the edges. These holes and the joint were then pitched to prevent leakage.

Often when a bottom is quite badly worn it is cut from the basket, together with the lowest coils of the sides back to where they are sound. A new bottom is made separately, which can be almost exactly fitted to the opening, and this is sewed in, the splint passing through and joining the edges of the walls to those of the bottom. The stitch may include a coil or two on either side, at least in places. But as mending entails no small amount of labor, few people seek to preserve their baskets and prefer to make new ones.

FORMS AND PURPOSES OF BASKETS

According to tradition, in olden times there were 10 different kinds of baskets recognized by the tribe. These fall naturally into four groups according to their general shapes. (See appendix, p. 395.) They are:

Group I. Burden baskets (fig. 26, p. 198).

1. Tsi.'a, common large burden basket.
2. Tsi.he'tsa, shallower and smaller form of burden basket, generally two-thirds to three-quarters the size of the tsi.'a.
3. Spa'nék, small burden basket about half the size of the tsi.'a.
4. Spa'pének, smallest burden basket, about one-quarter the size of the tsi.'a.

Group II. Round baskets, basins, pails, bowls, kettles (fig. 27, p. 201).

5. .nkó'etén, a large circular basket (kettle).
6. .nko'koeten, small circular basket, the size of a large bowl.

Group III. Nut- and pot-shaped baskets (fig. 28, p. 203).

7. .slkómoxé'lemox, small round basket.
8. .slkapuxé'lemox, nut-shaped basket.

Group IV. Storage baskets (fig. 29, p. 206).

9. .stlük, large storage basket, oblong, with rounded corners, high shoulders.
10. .stlü.lk., smaller size of same shape, workbasket (?).

In addition to these four groups, all of which are represented by old and well-established forms, there are numerous "freak" shapes, copies of more or less modern utensils, boxes and dishes, which, although showing many variations, are classed together in a fifth group. The basis of this last classification is merely that the forms are not indigenous. One quite old shape which is not included by the informants in the original four groups but which certainly was made from very early times, is the tray, frequently of great width, but very shallow or even flat.

Each of the four original groups is represented by numerous gradations in size, as well as form, especially the last named. Some forms are due to modern influences which have crept in gradually. The classification given above is therefore not rigid and must seek justification also from the purpose to which each group of baskets is put. Group I are used chiefly for dry burdens of all descriptions, Group II are for liquids, Group III are for the storage of small articles,

and Group IV are for storage of large amounts of food or clothing. The Indians recognize further subdivisions by descriptive terms, such as large, small, medium sized, low, high, very small, very round, big or small mouthed, constricted. In the appendix are given all the names that have been secured (pp. 395 et seq.).

The various kinds of baskets are not local forms but are rather generally made by all the divisions of the tribe, although there is a tendency on the part of different bands to manufacture some kinds more than others. The forms, Figure 26, *a-f*, are very common everywhere, while the remainder are made chiefly by the bands along the Fraser River. Those around Lytton perhaps preferred round forms like those of Group III, while the Lower Thompson favored oblong shapes similar to those represented in Group IV. Most of the largest *stlūk* are made by them, while their neighbors

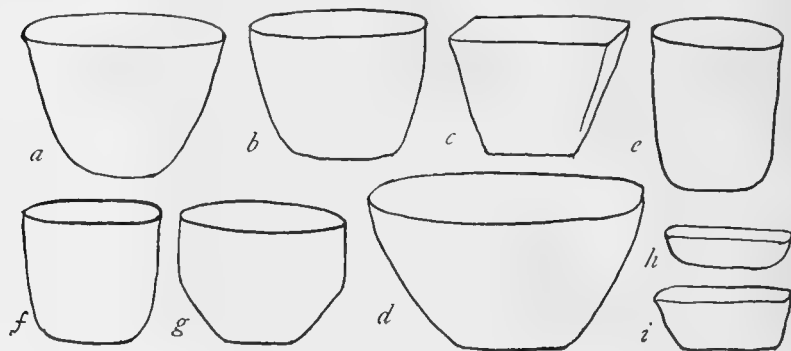


FIG. 26.—Types of burden baskets

produce a smaller size of the same variety. The bands east of Lytton made none of these storage baskets, and only a few round forms.

GROUP I. BURDEN BASKETS

As might be inferred from their general distribution and popularity, the burden baskets represented by the first group are the oldest forms. Their shapes range from a truncated cone to a truncated pyramid, and the former is said to be the older form. Figure 26, *e, f, g*, approximate old Wenatchi types which the Thompson imitated long ago. Their shape lay probably between these and those represented by *a* and *b*. These old forms were deeper in proportion to their diameters and resembled the earlier birch bark shapes;¹⁸ but they are no longer made. The sketches *a* and *b*

¹⁸ Another old type resembled some of the modern forms such as Figure 26, *h*, but had straighter walls. It was like those existing among the tribes in southern Washington west of the Cascades, such as the Nisqualli and Cowlitz, and is said to have been used by the interior Salish along Columbia River. Among the Klickitat the tendency of late has been away from this type toward a distinctly conical form, with very small bottom and flaring walls. It is doubtful if the tribes living east of the Cascades, in the State of Washington, ever made any but circular forms.

represent also old types which, however, are still in use, although *b* is at present rather rare. Type *c* is a modern development, approximating the common Lillooet style, but with a larger, longer base and less flare of sides which lack the sharp corners so characteristic of the Lillooet. Most of the people consider sharp corners detrimental to durability. Type *d* represents a very large-mouthed type, which is said not to be very old. The most common modern baskets tend toward this form, with the flare becoming less in the upper half or third of the basket. There are at present all possible variations of these forms, with sharp or rounded corners, squared oval, purely oval and quite rectangular bottoms and mouths, or with bottoms of one of these forms and mouths of another. It seems that the industry is passing through a transitional stage, at least as far as the forms of the products are concerned, so that it is difficult to draw hard and fast lines. Still, with all these burden shapes, there is a group similarity and a noticeably fairly regular proportion maintained between the parts of any one basket. The shallower forms (fig. 26, *h*, *i*) are not common. They resemble the lower parts of burden baskets.

The tsi.'a is the largest of the typical burden shapes. It is 40 cm. high, or thereabouts, 60 cm. long at the mouth, and 45 cm. wide, with varying base measurements. Sometimes the end walls flare a little more than the sides. It is used for big loads, such as wood, roots, etc., and even for boiling soapberries by means of heated stones. It is carried on the back by means of tump lines and is strapped on the sides of the horses when making long journeys or when the load is too heavy for the people to transport. It is said that the tsi.'a was gradually made more and more elongated, when it was discovered that a modified shape did not roll so much when being carried. Nearly all of these baskets have elongated coiled bottoms.

Sometimes the largest baskets were used for bathtubs, or wash-tubs, either in or out of doors. If used for bathing purposes, a hole was frequently dug in the ground into which the basket was placed, so that it might not tip over with its occupant.

Some old people declare that the tsi.'a was specially designed for carrying burdens and that the present form is the acme of perfection. Its lower part is made narrow to fit the small of the back, and its upper part wide where it rests on the shoulders. One of the longer sides rests firmly and flatly on the back, preventing the troublesome rolling of round forms. There is just enough flare so that the basket is about vertical when the bearer is bent forward under the load, and the slant of the end walls, which is a little more than that of the sides, is sufficient to prevent the carrying strap which passes around it from slipping up and bringing too much strain on the loops through which

it passes. The bottom is just large enough so that the basket will remain upright when on the ground. The old people consider as awkward and impracticable conical baskets which can not stand up and must be transported on carrying frames, such as they have seen in pictures of the Pima and Papago Indians in the southwestern part of the United States.

It seems quite certain that rounded forms were the earliest and that the rectangular ones have gradually superseded them, but that the extreme angularity noticeable in modern specimens is copied from the Lillooet, who have used these shapes for a long time.

The Thompson greatly admire the Lillooet forms and in trying to improve their own styles surpass their models in extreme angularity, but fail to accomplish the ends they strive for because they still make the bottoms too large and the sides too low.

The second size of burden basket, the *tsi.he'tsa*, is also an old type and varies little in shape from the large type, although according to a Nicola informant and his wife, who were partly of Thompson descent, this basket has a wider mouth in relation to its height. It serves as a berry basket or for carrying roots. When the women go out to gather roots, berries, or any other similar foods they often carry a large and a small basket, and when the latter is filled they empty the contents into the larger receptacle, and when this is full it is carried home, the little basket resting on top of the load. The *tsi.he'tsa* measures about 30 cm. in height; the mouth 35 by 45 cm., and the base 18 by 22 cm.

Young girls carry smaller baskets, and with them the *spa'nêk* and *spa'penek* are popular. These range from 17 to 24 cm. in height, 16 by 22 to 25 by 35 cm. for mouth dimensions, and 7 by 11 to 11 by 23 cm. for the base. Their names merely denote differences in size. A few very small ones are made for little girls, and are used by them in play. Since they are quite as strong as other baskets, they are frequently pressed into service about the lodge, as dippers, scoops, etc. Burden baskets of almost any size were used when removing snow or earth. In the former case they were employed like shovels, but as the moving of earth or sand was a more arduous process which was likely to damage the basket the soil was first loosened and heaped up and then scooped into the large basket which lay on its side with the rim on a level with the bottom of the pile of earth, while it was steadied with the knee.

Three loops of buckskin passed around three or four coils serve to hold the carrying strap. They are placed at both corners of the side which is intended to lie next to the back and in the center on the opposite side. The tump line passes through them and crosses on the back; the ends which are brought around in front of the person are tied. Methods of tying cords across the top of the load have been treated in the

section on "handles" (p. 195). If the load is heavy and the basket does not fit the back well, small pads of bunches of grass, some brush, or a folded shawl or sack are laid across the small of the back.

GROUP II. KETTLES AND BOWLS

The circular forms of the second group were used principally for holding liquids. Of many variations of this general type, the kettle basket, *nkō'eten* (fig. 27, *e*), is the most common. It is the general basket used for cooking, or was until the white man's kettle supplanted it. It also held water for household purposes, but was then called *xaiê'ka*. There were sizes for all possible uses, in which the degree of flare varied considerably. The smaller bowls were given the general name *nko'koeten*, but when used by shamans in ceremonies were called *kaieksten* (thing for dipping the hands in).¹⁹

Special names were given to baskets employed about the house, according to the use to which they were put, rather than according to size. They held food, water, oil, berries, or medicine and were used as dishes, washbowls, or mortars. They also were filled with



FIG. 27.—Types of kettles and bowls

water and placed beside the cooking basket, and into them the housewife dipped her hot stones to cleanse them of ashes before dropping them into the cooking kettle. Sometimes the larger kettles had hoops of wood fastened near the rim to assist in keeping them in shape and as an aid in lifting them, but this is more characteristic of Chilcotin than of Thompson baskets. The large sizes were 35 to 50 cm. high and 50 to 70 cm. in diameter at the mouth, which was about double the size of the bottom. Like the large burden baskets they were sometimes requisitioned for bathtubs.

The sketches, Figure 27, *a-d*, show different forms of bowls down to the smallest, which were used as cups. Figure 27, *f*, shows a pail which resembles the earlier bark baskets from which it may have been copied. It is rather rare at the present time.

Baskets, shallow and wide at the mouth in proportion to the height, served as basins. They were made by the Upper *Utā'mqt* and

¹⁹ When the shaman treated a sick person the bowl was filled with water and placed near him. He dipped his fingers into it and transferred the moisture to his mouth while performing the ceremony. The same type of basket was used in the sweat lodge for holding water which was sprinkled on hot stones. These two kinds were specially decorated and kept separate, never being used for secular purposes. There were others which were used by youths and maidens during their training, but most of these were of bark. Although the sizes merge into one another almost imperceptibly to our eyes, the Indians differentiate them more particularly than we should be apt to do. Figures 156 and 157 and Plate 35 in Mason's "Aboriginal American Basketry" represent some common shapes.

Lytton bands. Many were provided with two holes on opposite sides, for finger-holds when they were lifted, but it is said that older specimens were supplied with buckskin loops. Figure 27, *g*, gives the general form.

Usually those baskets which are intended for the same purpose in any group are approximately of the same size. This may be illustrated by the "cup," which is perhaps the smallest of the round forms. Those measuring 12 cm. in depth and mouth diameter and 5 cm. across the bottom are said to be of average size and shape, with the proper amount of flare. But there are others only 8 cm. deep, 8 cm. wide at the mouth, and 6 cm. across the bottom. These are considered small specimens. The average cup appears to our eyes somewhat deep in proportion to its width and the walls almost too vertical. Mr. Teit was told that a cup might have considerable flare and still be used, but that it would be recognized as being wrongly proportioned. The men would probably notice the unusual shape but would not criticize it sharply as long as it could be made to serve its purpose.

Cups were called *zā'uten* or *.nzā'umen* (thing for dipping). They are not as common as bark vessels used for the same purpose. The dipper is supposed to have more flare than the cup. A man said it resembled the Wenatchi baskets (fig. 26, *e, f*, p. 198), but was small. It is said that basketry cups were mostly used by girls.

Of the bowls and other round baskets examined, the height measurement usually lay between those of the diameters of bottom and mouth. Two bowls were considered small, the measurements of which are as follows:

	Height	Diameter of bottom	Diameter of mouth
	<i>Cm.</i>	<i>Cm.</i>	<i>Cm.</i>
No. 1.....	10. 8	7. 6	14. 6
No. 2.....	12. 1	10. 8	20. 3

Round trays measuring 40.7 cm. to 50.9 cm. in diameter were considered large by three Upper Thompson experts, who said very few were made measuring more than 50 cm. Trays 25.4 cm. to 30.5 cm. in diameter were classed as small.

GROUP III. NUT-SHAPED BASKETS

To this group belong also the pot-shaped baskets, robin's nest, and underground house forms.

The "nut-shaped" baskets were used for storing berries and were also the common workbaskets for the women, used to hold small tools—awls, thread, shells, trinkets, and any other odds and ends. (See fig. 28, *e.*) They derived their name from their resemblance to

hazelnuts. They are practically identical in size, for the "nut shape" is the most fixed and widely known of any of the round forms. It is also one of the oldest. The bottom is usually small, circular, and flat, but the sides have two distinctive forms. The first variety is largest in diameter through the middle; the other is widest higher up, at what may be called the shoulder. Among the people themselves there is some disagreement as to which is the original form, but according to Mr. Teit, the former type is the older one. So well established have size and shape become that no one who makes a nut-shaped basket attempts to deviate noticeably from the standard. Every woman who manufactures one has a clear conception of how

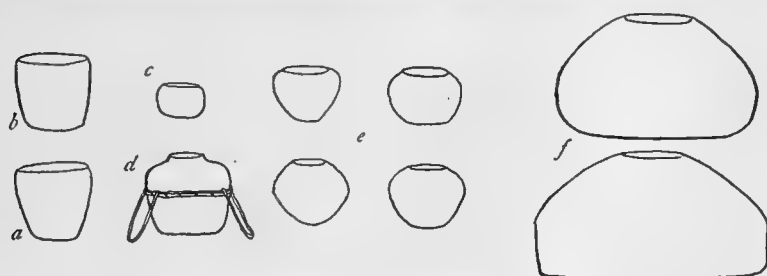


FIG. 28.—Types of baskets

it must appear when finished and adjusts her work accordingly. She may alter the size a little, but never the shape, which is always one of the two types just mentioned. It is claimed that long ago there were very large "nut shapes," but these are not made any more. They were about four times the size of the little ones and were used for holding stored provisions, or for clothes and ornaments, tobacco, or kinnikinnick.

The average size of the former variety and its most common proportions are illustrated by the following measurements of four specimens which were declared by the three women of the upper bands before mentioned to be good examples.

	Height	Greatest diameter	Diameter of bottom	Diameter of mouth
	<i>Cm.</i>	<i>Cm.</i>	<i>Cm.</i>	<i>Cm.</i>
No. 1.....	15.0	20.3	12.1	13.0
No. 2.....	12.7	19.3	11.9	11.3
No. 3.....	12.1	19.3	8.9	12.1
No. 4.....	11.3	17.8	11.3	12.7

Very small baskets of this shape would, according to these informants, be considered as curiosities and were of little practical use. A nut-shaped basket with greatest diameter a little above the middle, which measured 19.4 cm. in height, 23.5 cm. in its greatest diameter,

11.9 cm. across the bottom, and 11.3 cm. across the mouth, was considered rather too high for the other proportions. The mouths of these baskets were made just large enough to permit the easy entrance of a woman's hand. Most of the women said there was no point in making them any larger and none were made smaller, because they would be inconvenient (pl. 17, *d*). Almost all of these are provided with lids (pls. 8, *d*, and 9, *a*), which are attached by one or two long loops of buckskin, fastened as shown in Figure 16, *e* and *f*, p. 186. Occasionally they are attached with pieces of leather resembling hinges (fig. 16, *a*), but this style is not popular, for the hinge obscures part of the design. Other methods are pictured in Figure 16, *b-d*. Modern baskets have a flanged rim and lid, as shown in Figure 17, *d* and *f*, p. 188. Lids of hide were ornamented with designs carried out in paint or beads, and were sometimes pinked around the edges. The small nut-shaped baskets are often imbricated all over with great care, for they are usually intended for gifts to be given to other women or girls, and sometimes to men. A few have conoid lids instead of flat ones, with a knob on top as a handle. The knobs are quite modern and are made principally by the Lower Thompson. One of these is shown in Plate 14, *d*.

Very little is known about the pot-shaped baskets. They were rather large, like jars, with constricted mouths, just large enough to admit a hand, and supplied with buckskin loops for handles. They were used for storing water, oil, grease, etc. The mouth may have been sealed with pitch, although there is no information on this point. The age of the type is not known.

The jar shape given in Figure 28, *d*, is not made at all now, and many persons do not even know it. The neck was about 3 cm. high and was seldom over 7 cm. in diameter. There was no lid, but the opening was stopped with a plug of grass, bark, or wood. The loops for carrying are shown in the figure. Just when these shapes were used is not known, but they are supposed to have been employed for carrying water, or as pitchers in the house. Some people say they were first made in the time when the Hudson Bay Company flourished; that is, from 1810 to 1860; and again this is denied. It is possible that they were an old type, for bags and bark baskets with constricted mouths were commonly known and used by the tribe. Their exact proportions are uncertain.

A small round basket about the size of a cup but wider and with a slightly constricted rim was made by the Lytton people and dubbed "robin's nest" (fig. 28, *c*). It was used as a cup, generally by girls. "Robin's nests" were frequently imbricated all over the surface and even supplied with loopwork borders. In this case they were probably never intended to be used. They are rarely made now.

Another peculiar shape was the "underground house," so named from its resemblance to the winter lodge. It had bulging sides, long sloping shoulders, and a small mouth, and was used for storage purposes, even very long ago, but was not very common. It differs from the nut shape in its greater size and broad base. Figure 28, *f*, gives a conception of its general outline, which is not fixed, but takes two forms, as may be seen from the sketches. Its capacity was comparable to that of a large burden basket, or of the large, old-style nut-shapes. When the base was small it was quite similar to a nut-shaped basket. There was a tendency to decorate "underground house" baskets with ladder designs, representing the notched ladders of the semi-underground lodges; and also to apply a vertical stripe design which pictured the posts used in the construction of the house.

Some informants think these shapes were given their names on account of their resemblance to the objects; others say they were actually imitations of such objects and were necessarily so called.

The Lytton band was evidently more ingenious and original than some of the others, if they may be judged by the variety of shapes they invented. They are responsible for all the "fanciful" shapes as well as for the triangular, oval, and heart-shaped forms.

GROUP IV. STORAGE BASKETS

To the last of the four groups of old shapes belong the *.stlūk* or storage baskets, often called "trunk baskets" by the whites. It will be remembered that the ancient types were rounded, and that angular forms are a modern development. Figure 29, *a-e*, represent the old styles, while *f* represents a new form. Usually they have lids which are provided with buckskin hinges. Plate 15 gives excellent illustrations of three specimens of this type.^{19a} The largest equal in capacity a good-sized trunk of white manufacture. Their use was formerly confined to the bands around Lytton, who used them for the storage of clothing, blankets, and robes, while among the Upper Thompson bags took their place. These large sizes were seldom taken away from the village, but the smaller ones, which were used for food, were carried along. Very small ones are longer in proportion to their height than the large specimens (fig. 29, *e*) and serve as women's workbaskets or for treasure boxes in which to keep valuable feathers, small feather headdresses, necklaces, and fragile trinkets. The trunk-shaped baskets were also made among the adjoining tribes west of the Cascades in western Washington, and by the Coeur d'Alène and Lake tribes of the interior. It seems doubtful whether they were

^{19a} See also pls. 8, *c*; 9, *c*; 10, *a*, *b*; 11, *b*; 12, *a*, *b*; 17, *c*; 18, *b*; 26, *h*; 35, *e*; 38, *a*, *b*; 42, *g*; 50, *d*, *e*.

copied from the trunks used by whites who were in the service of the Hudson Bay Company as suggested by Mason,²⁰ for they seem to antedate by a long time the advent of these traders, and the earliest arrivals probably brought no baggage. In later years trunks may have been carried to the trading posts, but there were no such stations in the Thompson territory and many Thompson Indians never saw any posts previous to about 1860. It seems more probable that if they were not invented by the people for their own requirements, they may have been copies of the bent cedar wood or bark boxes made by the coast Indians, as Doctor Boas has suggested, although in this case the difference of form can not well be accounted for, since exact duplicates could have been just as easily made, as imitations of Lillooet

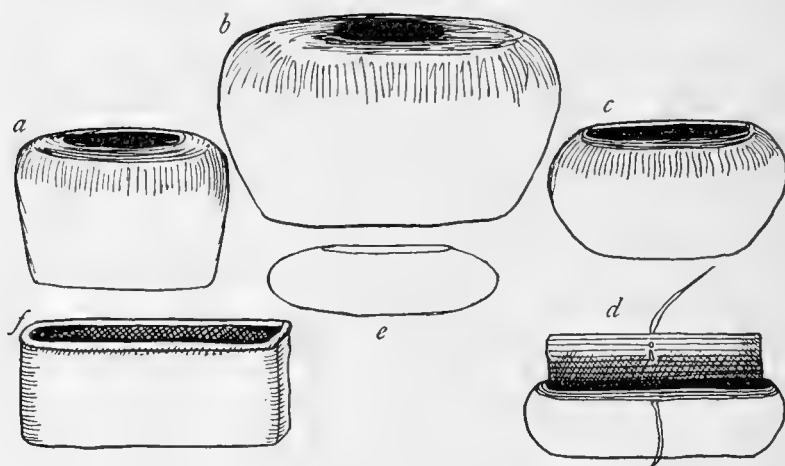


FIG. 29.—Types of storage baskets

forms are at the present day. The arrangement of the attached lid (pl. 12, *a*) seems to resemble flaps on woven or skin bags which were common enough among the interior tribes.

GROUP V. ODD SHAPES

In addition to the groups so far discussed, there were many odd forms used for a variety of purposes. The most numerous among these types are trays and plaques, which were used as food dishes and eating plates and especially for passing food during ceremonies, as well as to toss dice on in gambling, and to fan the fire with. These, as their names suggest, have broad, flat bottoms and flaring sides which might better be termed rims, because of their insignificant height. Those intended for ceremonies have higher walls than those used for ordinary purposes. They are of various shapes, as Figure 30 shows.

²⁰ O. T. Mason, *Aboriginal American Basketry*, p. 285.

Here also the Fraser River people who manufacture them display their inventive genius. The Lower Thompson have only recently attempted to make them, while the bands east of Thompson Siding never have done so, but used woven mats and bark vessels instead.

The former distribution of coiled-work trays and dishes is not known, but the people say that there were not many long ago.

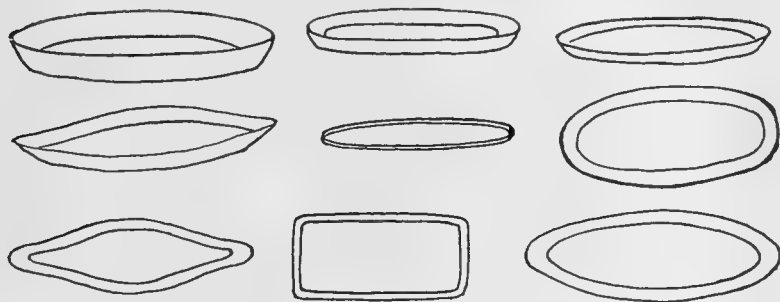


FIG. 30.—Types of trays

Those used for household purposes were rather plain, being ornamented near the rim with a line of beading or imbrication in an old arrowhead design. Imbricated ornamentation on the inside bottom was unknown in former times, but at the present time for the ceremonial utensils an elaborate scheme of decoration of this part has come into vogue. Although the people discriminate between the various sizes and forms according to the uses to which they are put and use

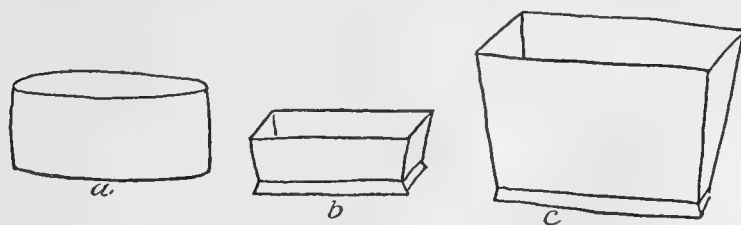


FIG. 31.—Types of baskets—*a*, tub-shaped; *b*, *c*, box-shaped

distinctive terms for these, the common name for this type of utensil is *zālt*.

A circular tub-shaped basket sketched in Figure 31, *a*, is a modern form which is occasionally made by the Fraser River people, generally of sapwood foundation coil. They call these baskets *.nkwoi'tsemen* or *.ntsau'men*, names which they also apply to washtubs and basins of white manufacture. Mason²¹ shows a specimen of this type in his Plate 156, which he says comes from Port Douglas in the country of the Lower Lillooet.

²¹ O. T. Mason, *Aboriginal American Basketry*.

The boxes sketched in Figure 31, *b*, *c*, are examples of the imitations of white men's boxes made at the present time. They are of all sizes and either oblong or square, and when they are Lower Thompson products, frequently have a slat bottom and a stand or foot. They are used in the house for storage purposes and may or may not have lids. Usually when these are present they are of the variety seen in Plate 12, *a*, or flat, tied on with buckskin thongs; a few fit into the rim, as do those of crocks or pots of white manufacture, and quite a number are provided with basketry knobs of one description or another. They are frequently profusely decorated with imbricated designs and on account of their neat, attractive appearance are bought in large numbers by the whites.

There are also baskets for pouring liquids, shown in Figure 32, *a*, *b*, which were likewise used as berry dishes or bins for dry materials, and flat-backed types shown in Figure 32, *c*, and on Plate 9, *d*, which were formerly used, but are seldom manufactured now. The origin

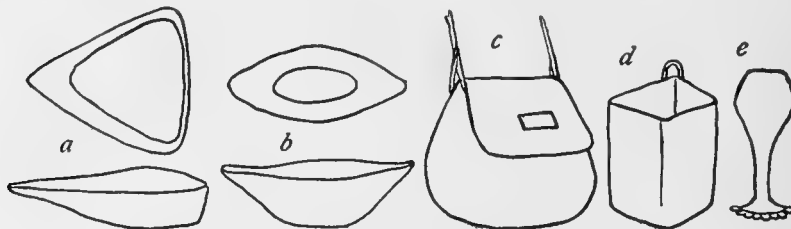


FIG. 32.—Types of baskets—*a*, *b*, for pouring liquids; *c*, storage basket for tobacco and pipe; *d*, for general storage; *e*, rattle

of this type is uncertain, for it is very unlikely that the fur traders introduced the shape. Its first appearance, the people claim, was at Lytton, where so many other odd shapes originated; it was not adopted elsewhere, and was used in much the same way as fishermen employ it now, or it was hung up in the house and held tobacco, kinnikinnick, and pipes. The hole is said to have been made in order to allow the long pipestems to protrude from it. Such a shape was also useful when traveling, for it made a very excellent saddlebag.

Figure 32, *d*, is simply a square receptacle for suspension. The type of rattle in Figure 32, *e*,²² is usually about 8 cm. high, coiled all in one piece, beginning at the top and worked toward the handle. It ends in a loopwork coil. The head and handle are hollow and the pebbles in the head are kept there by a wooden plug, which stops the opening. The larger and heavier kinds used in dances and ceremonies frequently had additional loops of basketry or thongs by which to hold them. They were made by all the Fraser Bands and the Upper and Lower Lillooet. Fancy baskets of all shapes are now made of loopwork coil. (Pls. 16, *a*; 17, *a*, *e*, *g*.)

²² See top view, pl. 13, *b*.

Innumerable other objects are also manufactured by the Thompson and Lillooet, including backs for quivers; shields, which were of slats woven together with cordage or splints, but not so far as known of coiled ware; gaming rings and targets; toys of all sorts, which comprise miniature lodges; tents; sweathouses; grave fences; and boxes and doll carriers, ornamented with streamers of dyed bark, feathers, beads, shells, teeth, and hoofs. The little houses are frequently imbricated with designs representing house beams, and furnished with miniature ladders, carved and painted. For "under-ground houses" only that part which shows above the ground is constructed.

The Lytton people, the Upper Thompson, and Upper Fraser Band even undertook to manufacture spoons of coiled work, and so ingenious is their construction that it seems worthy of a full description.

Some are toys for little girls and therefore not very durable, but those intended for actual use are rigid enough for all purposes. Where the handles show signs of bending, a light rod or slat is lashed to the back throughout the length, or occasionally a thick strip of rawhide or the stiff leg sinew of a deer is substituted. The spoons formerly in use are said to have been strong and rigid, perhaps 35 cm. in length, over 9 cm. across at the bowl, and 2.5 cm. across the handle. They were as thick as one round coil of basketry such as would be used in a burden basket, perhaps 7 mm. A loop or hole was left at the end of the handle for suspension. Usually spoons, if ornamented at all, bore only lines of beading. However, only a few of the bands used spoons of basketry; the common ones were of horn and wood.

Figure 33 shows the method of construction. The center of the handle is made by folding and wrapping a coil, catching the two sides together with medial sewing. One loose end is doubled back at 1 and the end caught in the last of the wrapping which covers the original double section. This folded end is then covered with a sewing splint, and then the other end, which is longer, is brought around it and sewed, ending at 2. Three short pieces of coil (sometimes consisting of a single piece doubled back and forth) are sewed around the outside of these to form a nucleus for the bowl-shaped portion; a new piece is started at 3, the end being sewed down to the central part of the handle, after which it is brought around the top as a loop, separated from the rest, and wrapped to the corresponding point 4 on the other side. From here it is carried completely around the spoon to the point from which it started, where it is

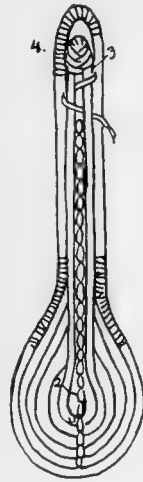


FIG. 33.—Sketch illustrating the making of a basketry spoon

fastened. A medial sewing extends down the center of the handle and across the bowl. It is said that there are many different methods of making spoons, but this is the only one of which a full description could be obtained.

Plate 16, *b*, shows a modern basket with a partition. Such devices were unknown in former times, the form being derived from knife and fork baskets and boxes belonging to the white man. In fact there is scarcely an object which has been introduced by trade with the white men and which can possibly be copied in basketry that these people have not attempted to make. In addition to their inventive and creative genius which has led them to originate many odd forms whose construction is no easy task, and whose ornamentation is so difficult of satisfactory accomplishment that the beautiful finished products challenge admiration, their imitative faculty is also highly developed, as the foregoing descriptions have made clear.

BABY CARRIERS

Baby carriers of basketry were rather rare long ago, although they are common enough at the present day. Nevertheless they are quite an old invention. Formerly the carriers were of bark. Some say that the Thompson adopted them from the Lower Lillooet, who made theirs of rather narrow, flat coils or slats of cedar wood. The Thompson have always made their carriers of slats or flat coils rather than of round ones. Sometimes they are entirely constructed of slats, or else several kinds of technique are used, one kind for the bottom, another for the sides. In fact, there are five principal types. The first is of round coil throughout, the second of flat coil throughout, though usually even on these a round coil connects the bottom and sides and finishes the rim. The third type has the middle part of the bottom constructed of flat coils, with round coils for the rest of the basket, while the fourth has practically the whole bottom of flat coil. The last type has the bottom, to above the curve, of round coil, with the remainder of flat coil, except the rim, which is again round. In the place of flat coils, wooden slats are frequently used, being wrapped with a sewing splint in the same manner as other foundation material.

In addition to being sewed with brightly colored splints, which at the present time are usually tinted with commercial dyes in several colors besides the customary red and black, the carriers are partially covered and lined with gay pieces of cloth and sometimes decorated with shells or other little articles which jingle pleasantly.

In former times, according to the old people, all baskets were very simple. They were rarely decorated with designs in colored materials. Even now those people who are more conservative and try to maintain the old traditions prefer only natural tints or simple figures.

But they are at present far outnumbered by others who are rapidly developing the art of basketry decoration to the highest degree. It seems, however, that baby carriers have always been an exception to the rule, and that the practice has been to make them quite gaudy.²³

The kind of beaded work which is so often seen on baby baskets manufactured by the Lillooet, Squamish, and their coast neighbors is not used by the Thompson, and probably never has been.

Most Thompson carriers are ornamented with simple beading or imbrication on one side only, or more generally on one side and ends, the opposite long side being left undecorated because it is always carried next to the bearer. The same thought seems to control the situation here as with the unadorned bottoms of baskets, or with the bare section of the burden basket which lies next the back.

The left side of the basket, i. e., the side to the left of the child in the cradle, is the one which is decorated, for when carried on the mother's back the cradle is horizontal and the child lies with its head toward the mother's right, while the child's right side is next

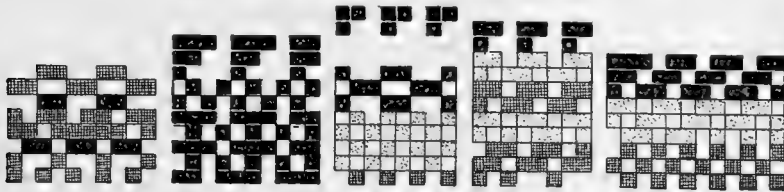


FIG. 34.—Beaded designs for baby carriers

to the mother. Mr. Teit thinks that the custom of carrying the baby in this manner has something to do with right-handedness and a belief in the superior or mystic nature of the right side, as opposed to the left. Some women say it is the most convenient method, while others give the usual reason: "It is the old way."

Nevertheless, there are carriers which are ornamented all around, but even when this is so the left side bears more elaborate work, and only a few are evenly decorated. Some are entirely without ornamentation, while others bear designs only about the rim.

Figure 34 gives five beaded designs seen on baby carriers among the Upper Thompson. It was not known where the carriers so adorned had been made, as they had passed through several hands. It is possible that they were of Lillooet manufacture. The owner of one thought that hers had been made by the Lillooet, but was not sure, while the owner of another said she believed hers came from the Thompson living near Lytton, but she, too, was not certain. Several Thompson women said they could make all of the designs shown in Figure 34 if they chose.

²³ See also p. 148.

The general shape of the baby carrier is shown in Plates 42, *i*, and 43, *a*, *b*.

PROPORTIONS OF BURDEN BASKETS

In order to understand the characteristic application of designs to different surfaces, which is one of the most important questions to be considered, it is necessary to concentrate particularly on the burden baskets, which are probably the most numerous of the various forms on which these people lavish their art. On account of the peculiarly shaped fields that they offer for decoration they furnish the best opportunities for study, and a closer analysis has been attempted which will furnish the necessary basis for the study of their ornamentation.

In dealing with the proportions of various kinds of baskets it is interesting to note the degree of correspondence between what the basket makers themselves consider proper and what are actually the proportions arrived at in the products which they complete. Personal opinion regarding shapes and parts of baskets varies considerably. The variation, however, is not sufficient to disturb the fact that baskets of certain types, such as burden baskets, do bear a striking resemblance one to another. This is the more remarkable since not all the makers have definite proportions in view; inaccuracies of workmanship affect the resultant form; and measurements, when made at all, are approximate only. Furthermore, some of the most obvious proportions between dimensions have never been observed by the people themselves,²⁴ and in regard to others the claims of the makers are contradicted by actual observation.

We shall first note the opinions of the people themselves as recorded by Mr. Teit and thus gain an insight into their methods before discussing the results of an objective study of the baskets.

The same three experts who were questioned regarding "nut-shaped" baskets approved as of average size and correct proportions four baskets, two called by them *spa'peneK* (see p. 197) and two classed as *spa'nêk* (see p. 197), the measurements of which are as follows:

²⁴ These points will appear more clearly from a study of the lists of measurements for some museum specimens given in the appendix (pp. 416 et seq.), together with some statements from recognized tribal authorities on basket making regarding correct proportions. (See also p. 220.)

Spa'pENEK

	Height	Length of mouth	Width of mouth	Length of bottom	Width of bottom
	Cm.	Cm.	Cm.	Cm.	Cm.
No. 1.....	18	24	18	13	8
No. 2.....	16	23	16.5	11	8

Spa'nêk

	Height	Length of mouth	Width of mouth	Length of bottom	Width of bottom
	Cm.	Cm.	Cm.	Cm.	Cm.
No. 1.....	25	36	26	23	11
No. 2.....	23	32	23	20	11

From this table it will be seen that for either type the width of mouth and height are very nearly, if not exactly, the same. The ratios of the width of the mouth to the length of mouth are, respectively, 0.73, 0.72, 0.72, and 0.7, averaging 0.72. The width of the bottom is a little less than half the height and a little less than half the width of the mouth. There is too much variation in the other proportions in their relation to each other to admit of any generalized statement, except that in the case of the spa'pENEK the length of bottom is about half that of the mouth while with the spa'nêk it is from five-eighths to two-thirds.

One of the three informants mentioned above, with two others, considered the bottom of the first of the two spa'nêk a little too narrow for its length, the general appearance of the whole basket being too long. Some thought a common spa'nêk should be smaller. All the women judged by the eye, and made no attempts to measure.

For the purpose of comparison it is interesting to note the measurements of another burden basket made in Nicola Valley: height, 31 cm.; length of mouth, 46 cm.; width of mouth, 27 cm.; length of bottom, 27 cm.; width of bottom, 15 cm.

This was condemned as very badly proportioned, too long for its width, although the height was deemed about right for a small burden basket (tsi.'a) or one of this general size. Other informants said if it was too long it was only slightly so, but that the mouth was too narrow.

Since there is psychologically a vast difference between the ability to appreciate the proportions of a finished product and the faculty of analyzing such proportions and defining the principles upon which they should be judged, it will be interesting to observe the opinions of several women as to what constitutes the correct proportions of the various types of burden baskets. It will be apparent that they differ not only in theory but in their methods of determination. To what extent may be more clearly seen from the table on pages 416 et seq.

Informants Nos. 19 and 24 thought that the bottoms of burden baskets should be a little more than half as wide as they were long. According to them, the width of the mouth should be a little more than double that of the bottom, while its length should be a little less than double the corresponding measurement of the base. (The proportions of the mouth, under these conditions, would be quite different from those of the bottom in the same basket. The latter would approximate the form of Figure 35, *a*, while the former would resemble *b*.) They maintained that the height should be about equal to the length of the bottom, and thought the greatest variation in burden baskets was in the proportionate length of the mouth. Different women were not so particular about proportionate heights. A basket which they called a large spa'nêk or small tsi.'a measured in height roughly 26 cm., length of mouth 41 cm., width of mouth 28 cm., length of bottom 23 cm., and width of bottom 13 cm. Another

person said it was a little too low, which might well be, if actual study of measurements counts for anything. The width of mouth and height are generally practically the same.

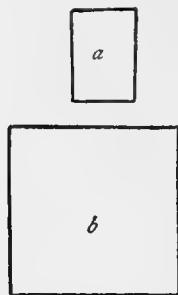


FIG. 35.—Form of bottom and mouth of burden basket

The same informants said tsi.he'tsa baskets were lower than real burden baskets. They thought the height should be double the width of the bottom or a little less, and about the same as the width of the mouth, while the length of the mouth should be about half again as long as that of the bottom.

These women said that they and some others measured burden baskets with their fingers and strove to obtain these proportions. In measuring for a spa'nêk they made the length of the bottom about one span (the distance between the ends of the extended thumb and middle finger), while the width equaled that of the widest part of the hand. The height for such a basket was usually about one span. They observed that the greatest width of the hand is about equal to the length of the middle finger from point to knuckle, or a little less, so they often used this instead of the width of the hand as a unit of measurement. A slightly larger basket than the above-mentioned spa'nêk measures one span and one joint (the distance from finger tip to the first joint), which determines the length of bottom or height or both. The measurements vary, so the people say, because there are many shapes and sizes of hands. Some women do not measure at all.

No. 29 claimed that she and a number of others measured their baskets more or less in order to obtain better proportions. They only measured the length and width of bottoms, however, and the height of the sides. Some took only one or two of these measure-

ments, and gauged the rest altogether by eye or with splints. No. 29 herself always measured the bottoms, especially for the length, taking this also for the approximate height of the sides. She generally used the middle finger, and put the point down first, then joint after joint, to the knuckle. Besides such measurements, this group of informants used single joints, counting one, two, three, etc., and also the span, as well as the width of the hand, that of the fingers when lying close side by side, or single finger widths, counted in the same way as the joints.

They declared that the bottom of a common tsi.'a should measure in length one span and one finger length, while the sides should be between that and two spans in height.

No. 22 said she frequently measured, especially for the diameters of the bottom and the height of the walls. She did this with her fingers, in the same way as the others. According to her, women varied especially in the height selected. Her tsi.'a baskets were always two spans and two joints high, the length of bottom being a little less than this. The width of the bottom was half, or a little more than half, of the length. She said women varied in making the bottoms for tsi.'a or burden baskets. Some made them smaller, while others varied the proportions. A basket with a wider bottom should have a wider mouth, she thought.

No. 25, apparently an expert basket maker,²⁵ said that the height was determined chiefly by the size and proportions of the bottom. She did not measure bottoms but judged by the eye. It became a habit to work by eye and she knew the approximate size for the bottom of any particular size and kind of basket. She thought perhaps she was especially expert regarding burden baskets. The common large burden basket was made in different sizes by different women. Apparently a "size and shape" habit is acquired. Some women preferred smaller baskets than others, or made them a very little longer, wider, or higher, but all generally achieved the same shapes. Either by unconscious habit or by design they make the change of plane from bottom to sides very abrupt. No. 25 did not measure the sides until they were about half up, when she followed the very common method of gauging with the splint.

An Upper Thompson informant (not a numbered one) stated that she had seen women measuring the bottoms of burden baskets with their hands. Some considered that the proper diameters for the bottoms of small burden baskets should correspond to the length and breadth of the hand.

²⁵ See appendix, p. 446, for her personal qualifications.

It is quite clear in spite of differences that the women on the whole have quite well defined ideas as to what constitutes a good form for a burden basket. Only a bottom ranging in size within certain rather narrow limits is ever used with a basket of a given size. When a woman has completed a bottom to a certain point, she may be heard to say that now it is about the right size for such and such a type of basket. The whole picture of the one she intends to create is in her mind before she even commences the bottom, and this picture is her pattern. The proper flare is obtained by practice and good judgment. A woman soon learns to pinch out the coil to the right degree and so nearly do they all follow the standard that one woman can complete another's basket without perceptibly changing the flare. A rough calculation tells a woman after the sides are up, and a certain flare has been obtained, when it is time to make the rim. Two or three coils, more or less, on a large basket make little difference in the general appearance while on a small one they would utterly destroy the proportions which experience and taste have created as standards.

Sometimes the height of the walls is measured in the following manner. When the sides are about halfway up, the woman measures with a sewing splint, from the coil at which she is working down to the bottom, seizing the splint between the thumb and forefinger and marking the completed height with the edge of the nails. She then holds the splint up from the top coil to assist her in visualizing where the rim will come. If it appears too high by what seems to be two or three coils, she measures to within a coil or two of the bottom and by means of this shortened measurement gauges the correct height. When she is satisfied as to the proportion, she counts the number of coils which have been made in the approved distance from the top coil down to the one from which the splint was measured and adds the same number above. The proportions are not altered by the kind of bottom made, nor does sharpness or roundness of corners affect them. As a rule the Thompsons adhere quite closely to their own ideas of proportion and therefore the Lillooet think their baskets are of very bad shape.

When the corners are very rounded, the whole form approaching an oval, it is difficult to tell where sides leave off and ends begin. The women do not seem to think it necessary to determine this exactly, and no measurements are taken. The point of rounding is dependent upon the eye of the maker. Baskets with very rounded corners are considered to be of the real old Thompson style. The best old specimens show a very gradual transition from base to sides.

Several reasons are given for using the line of beading which marks the theoretical limit of the bottom.

1. This is declared to be a mark which defines the division between the sides and the bottom of the basket.

2. It is considered as a marginal line for the design field or else a base line for the ornamentation, giving it a border.

3. It is used as a mark to count the coils from or to measure from, in commencing designs, or to help the eye to note their position quickly. The height of the sides of the basket is also frequently measured from this line by women who do measure, even though it is only a theoretical and seldom an actual bottom edge.

4. It is also used to protect the basket from wear at this point, which is where burden baskets receive the most contact. Strangely enough this is the most common explanation, and some offer it as the only one. The third explanation ranks second in popularity, and the first is likewise common, while the second is rather rare. Very few women give all four reasons.

Having thus obtained an idea of what the makers themselves regard as the working principles of basketry construction, it is highly instructive and interesting to see what are the actual proportions, and how nearly the makers come to accomplishing what they start out to do, and what are some of the fairly constant proportions which they do achieve without apparently being conscious of them as such. The following is based on observations of museum specimens.

Roughly speaking, the burden baskets of the Thompson fall naturally into two not very strongly differentiated groups. A casual investigation will scarcely reveal this difference. The general impression is one of decidedly rectangular shapes, the sides longer than the ends, with rather small bases, flaring walls, and wide mouths, the

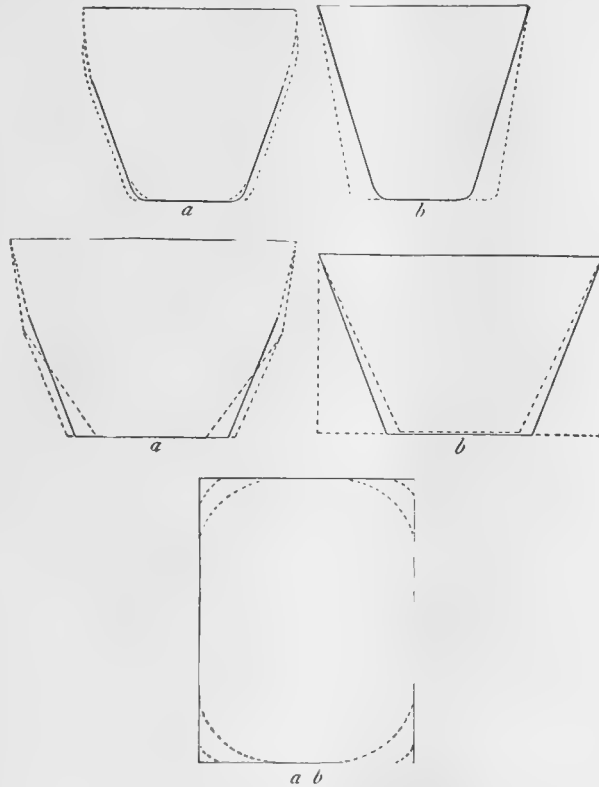


FIG. 36.—Forms for Thompson baskets

area of these being at least four times that of the base, frequently more. On the whole, the shapes appear to be rather deep, the height measurement falling about halfway between the width and length of the mouth, and exceeding a little the length of the bottom. Closer examination reveals that one group is marked by a decidedly oval wall contour throughout the lower half of the basket, the corners, if noticeable, being rounded (fig. 36, *a*). There is a flare of end walls of about 30° ; of side walls, about 20° . From about the middle of the basket upward the direction of the walls shifts to almost vertical, perhaps a slant of 10° being carried to the rim where the corners are more clearly defined. This feature, together with the rounded corners, small bases, wide mouths, and comparative depth, gives an exceedingly graceful effect.

It will be remembered that in the section on structure it was reported that the women corrected a too great tendency to flare by holding in the coils. Evidently for a certain type of basket this has become a part of the established procedure, for there are too many examples having almost identical form for the shift in direction of wall building which occurs somewhere between the middle and upper third of the basket to be accounted for in each case as a correction. Such an explanation might be given for baskets made by beginners, or poor hands, but not for all of those noted, many of which are undoubtedly the handiwork of expert craftswomen.

The second group resembles the first in general proportions, but chiefly lacks the curb to the flare. The walls are straight, and flare continuously, the ends at an angle of about 35° , the sides at about 25° . The corners are perhaps more sharply defined and some of the specimens, at least, are longer in proportion to their width. The height is not quite so great, being more nearly equal to the width of the mouth. Figure 36, *b*, shows a typical side and end of this style.

Within these two groups, which for convenience will be styled A and B, there is an almost continuous range of size, from the largest (A, height 40 cm., bottom 19 by 30, mouth 39 by 52; B, height 35, bottom 16 by 27, mouth 39 by 52) to the smallest (A, height 16, bottom 7 by 11, mouth 18 by 23; B, height 18, bottom 11 by 16, mouth 23 by 29). There are deep ones and shallow ones, but not in such number as to form distinct groups, while there are all possible variations in between. Group A has more representatives than group B and a more clearly defined middle or medium size, a good example of which measures for the height 27 cm., bottom 22 by 15, and mouth 40 by 30. There is also a variety of these two groups, A and B (medium to small size), represented by a few baskets whose walls, even at the rim, are almost purely oval. Looking down into them one is reminded of a clothes boiler or vat. The straightening of the walls toward the top, while less than in group A, is still noticeable. There is another intermediary group which combines the

characteristics of the types A and B in middle-sized baskets. They are rectangular, with a flare halfway between that of types A and B and about the same relative height.

Many baskets have straight rims on sides and ends with rounded corners, but rims which bulge along the sides and ends are quite common. It is impossible to tell whether this roundness between corners is an intentional feature in each case. Most of the baskets have been used for many years, and their shape, at the rim at least, where they are more flexible, has been altered no doubt quite materially in many cases by the character of burdens carried in them. All that it has been possible to do in the way of classifying these was to fit them as best it could be done, with due regard for all these points, and thus group them together.

There are a few specimens which are almost rectangular, some showing very sharply defined corners; and some shallow, very long forms with walls straighter and more vertical than the average, but these are after all rare compared to the others. Mr. Teit declared that there is no relation between the type of bottom used and the shape of the basket, but observation of specimens shows that there is some relation at least. All baskets with watch-spring bottoms, or those composed of several parallel lengths surrounded by elongated watch-spring coiling, are much more oval throughout their lower half than those made entirely or almost entirely of parallel coils. With these latter the tendency is toward well-defined corners. There is, however, a type of elongated watch-spring bottom, the coils of which are thickened to approximate the bottom to the proposed rectangular shape. This type is always associated with walls having corners, which, if not sharply defined, are nevertheless discernible. None of these remarks apply to the upper half of the basket, where, the farther away from the bottom the worker goes, the more easily she can adapt the form to her taste, since she is limited in her treatment of corners only by the thickness and rigidity of her material. A few baskets with very rectangular bases have perfectly oval rims, but these are rare, and the coils are in most cases unusually heavy and stiff, although there are enough examples of thin and pliable coils to refute the theory that the oval form is due largely to the rigidity of material. From the list of measurements given in the Appendix, p. 416, it may be seen that there is a much closer relation between the height and the width of mouth than between the length of bottom and height, or length of bottom and width of mouth, all three of which dimensions have been stated to be nearly equal.

The average excess of width of mouth over height is a little over 12 per cent.²⁶ Taking the height as standard, there are variations all the way from 94.5 to 150 per cent. These extremes are rare,

²⁶ See Appendix, pp. 416 et seq., for this series of ratios.

however, and indicate that the baskets having such proportions are evidently of another class, or are badly proportioned. It is sometimes quite difficult to know just how to classify a basket, on account of the surprising number of features usually not associated, which occasionally are represented together. The greatest number of measurements showing the ratio of width of mouth in relation to height center around 113 per cent. In a number of cases the two measurements are identical. Few women, however, are aware of this, and few seem to have noticed that the trapezoidal end of a basket thus has practically the same measurements for its two most conspicuous dimensions, the height and width at the top. This makes a T form which could in most cases be inclosed in an almost perfect square. On glancing at the baskets it would appear that the width of the bottom is about half that of the mouth, but a study of this ratio proves that there is so much variation that no generalized statement can be safely made. One very interesting ratio of proportions holds for practically all the baskets and is remarkably constant. The width of the mouth is about three-fourths of its length.²⁷ The average for the series is 74 per cent, the variations showing 10 cases below 70 per cent and 7 above 80 per cent out of 103 baskets measured.

Because of this constant ratio between width and length of mouth, the side of the basket in its two most conspicuous dimensions also has a fairly fixed form, which could theoretically be inclosed in a rectangle, the size of that of the mouth, or nearly so. Owing to the fact that the height is a little less than the width of mouth, the width of this second rectangle would not be quite the same, but according to the average obtained from the same set of measurements as in the case of the shape of the mouth would be only 66 per cent of the length. The variation in the ratio of the height to the length of mouth in this series of basketry is greater than for the mouth measurements.

The chief difficulty which lies in the way of discovering a fairly constant arithmetical relationship between the dimensions already discussed and those of the bottom lies in the extreme variability of the bottoms. To the eye a fairly constant trapezoid form is maintained for all the baskets, chiefly because the angle of inclination of the walls changes comparatively little. The lower limit of the side walls is obscured by the gradual curve which unites bottom and side, and does away with a defining edge, making it very difficult to measure the exact dimensions, theoretical or actual. The bottoms are also very small as compared with the upper portions of the baskets, which fact tends to make any variation from the form much less evident.

²⁷ For this average and variations see appendix, pp. 416 et seq.

The variability in size and shape may be attributed partly to the fact that women's hands vary in size, partly to the different types and forms of bottoms made, the shapes of which are often somewhat deceiving, and partly to the influence of the method of starting the coil. In watch-spring coiled bottoms a very slight difference in the length or width of the first turn of a coil will create a great difference in shape by the time the base is completed. Hence it is to be expected that very little satisfaction can be gained from trying to determine the ratio of the bottom to the rest of the basket.

An attempt has been made, however, to construct a synthetic sketch of the ends, sides, and mouths of the burden baskets of both A and B types, the proportions of which are based on a comparative study of the above mentioned measurements (fig. 36, p. 217). It was found that for both types the ratio of the width of the mouth to the length was 74 per cent.²⁸ The dotted lines show the approximate curves at the corners.

The length and width of the bottom present considerable difficulties. Since these two measurements control the form of the trapezoids which constitute ends and sides, it would be desirable if an average could be found which would be of value. As it is, the variations in both are rather large. In Group A the ratio of the width of the bottom to that of the mouth lies between 40 and 60 per cent, with an average of about 44 per cent.²⁸ This average has been indicated by solid lines in the sketch; the variations and consequent change of angle of the slope of sides by dotted lines. The shift in flare of walls is also indicated approximately by dotted lines. Since it comes somewhere between the upper half and upper third, with considerable variation, and exact measurements are not only difficult owing to rounded corners, but also of little practical value, the outlines have only been roughly indicated.

The same method of tracing average form and variation was used for the projections of the sides of the baskets. Here the lengths of the bottoms ranged from 40 to 60 per cent of the lengths of the mouths, the greatest number falling between 44 and 59 per cent, with an average of about 52 per cent.²⁸

In Group B the case is a little different. It has been stated that the proportions of the mouth were the same for this group as for Group A. There is also no material difference in the ratio of the height to the mouth measurements.²⁹

The lengths and widths of bottoms in relation to their respective mouth measurements differ somewhat from those found in Type A. The length of bottom in relation to the length of mouth varies from 40 to 74 per cent, with one case at 84 per cent and a slight preponderance

²⁸ See appendix, p. 416.

²⁹ See appendix, p. 417.

at 52 per cent.³⁰ This measurement has been indicated by solid lines, while the greatest variations and consequent changes in flare of sides are shown by dotted lines. The ratio of width of bottom to that of mouth, however, is represented by a quite marked preponderance of cases at 42 per cent, with a range from 30 to 59 per cent and a solitary case at 76 per cent. It is worth noting that this single example is the same one which showed the high ratio of 84 per cent in the relation of the length of bottom to length of mouth, mentioned above. The outlines of this trapezoid are indicated in the same manner as described above. The straight walls of the baskets in Group B are their most characteristic feature.³¹

Proportions of Lillooet baskets.—Opinions concerning the proportions for Lillooet baskets have not been obtained from their makers.

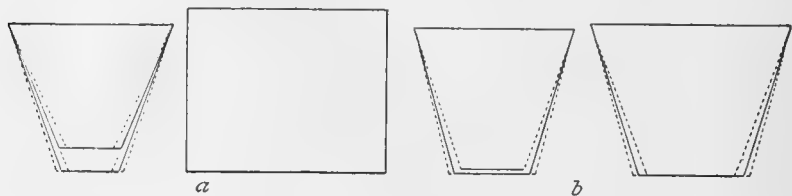


FIG. 37.—Forms for Lillooet baskets

In form they are more nearly square, with very small bases, wide mouths, straight walls, and sharp corners. The average ratio of the widths of mouths to the lengths is between 75 and 85 per cent. The greatest variations are 68 to 86 per cent, but the extremes are few in number; about 80 per cent seems to be the norm.

The ends and sides are trapezoids, the projections of which are shown in Figure 37. Their measurements were obtained in the same way as those of the Thompson baskets.³² The width of the mouth averages about 12 per cent more than the height. Therefore the trapezoid end is inclosed theoretically in about the same rectangle as that of the Thompson basket, while the side is a little shorter.

The widths of the bottoms, which in their ratio to the widths of the mouths control the form of the trapezoid assumed by the ends, show a very interesting division into two groups, one with an average of about 34 per cent, with greatest variation from 26 to 37 per cent, and another with an average of 44 per cent and variations from approximately 37 to 49 per cent. The lengths of bottoms in relation to lengths of mouths, however, are about the same in both groups, the variation ranging from 35 to 55 per cent, with the average about 44

³⁰ See appendix, p. 417.

³¹ In the appendix, pp. 416 et seq., the opinions of the makers regarding proportions and what has actually been found to exist have been tabulated for purposes of convenient comparison.

³² See appendix, p. 421.

per cent. There is one freak basket in which the width of base is 65 per cent of that of the mouth of the basket, while the length of the bottom is 83.5 per cent of the length of the mouth.³³

There is a very small group of Lillooet baskets in the American Museum of Natural History which represents the *kiketca* or small *katca*³⁴ of quite variable form. They measure about 12 cm. in height, but the ratio of the width to the length of mouth ranges from 44 to 76 per cent. The width of mouth exceeds the height by from 52 per cent to 79 per cent and the other ratios show equal variations; in some instances the corresponding measurements of bottom and mouth almost equal each other.

METHODS OF ORNAMENTATION

A tradition exists among the Thompson that the art of making and ornamenting coiled basketry was taught them long ago by the culture hero Coyote, incidentally, along with other arts. Baskets are often mentioned in mythology and are described as being coiled or of bark.

The majority of coiled baskets made by the Thompson, Lillooet, Chilcotin, Klickitat, and Wenatchi are ornamented on the outside surface by beaded or imbricated colored designs. Either may furnish the sole means of decoration or the two may be combined.

BEADING

According to the Upper Thompson, designs in beading are considered as imitations of strings and necklaces of beads, or even of bead or quill embroidery. About 1860 and earlier beading was more common, and at that time some baskets were completely covered with designs executed in this technique. Certainly it is very old, as its presence on the rims of ancient birch-bark baskets would indicate.³⁵ As far as tradition goes, the Thompson have always used both beading and imbrication. There is no statement that one is older than the other.

Red and black bark or grass are used for putting in the designs, red being more popular. The combination of these two with a third, such as white grass or straw, is rather rare.

In beading the outside of a coil, as it is being sewed and covered, is faced with a thin strip of brightly colored bark or grass. Occasionally more than one strip is used on the same coil at the same time. Necessarily, in such cases, the strips are reduced in width. (Fig. 38, *a*, *b*.) The diagonal work shown in *c* and *d* is done by the Lillooet and Upper Fraser peoples but it has not been found among the Lower

³³ All Lillooet bottoms are made of parallel coils or slats. Thus their marked rectangular form is in part accounted for.

³⁴ Lillooet terms for burden baskets.

³⁵ See Teit, *The Shuswap*. (Publication of the Jesup North Pacific Expedition, Vol. II, p. 478; fig. 202.)

Thompson. When finished ordinary beading looks like a ribbon drawn along the coil, after it has been sewed over and under the stitches. Plate 18, *b*, shows a lid decorated in this manner. The bark may be carried over or under varying numbers of stitches, any combination being permissible which lends itself to the formation of a pleasing design. When the ribbon passes beneath more than three stitches, however, it is cut off and started afresh, so as to avoid too great a waste of material. It is seldom carried over more than two stitches because, when so exposed, it is liable to wear off or to catch and tear.

With the exception of the difference in the number of stitches passed over or under, the process which is about to be described in detail is the same in all cases.

In the first place, the strip of colored bark is commonly laid face downward on the coil, extending to the left, with the right-hand end beneath the fingers at the point of sewing. A coil stitch is then made

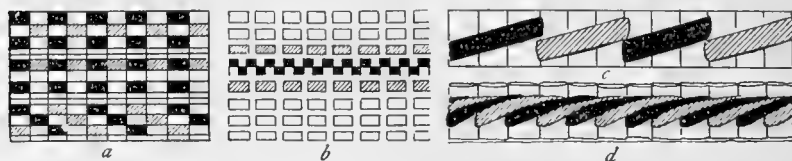


FIG. 38.—Methods of beading

over this end and pulled tight. Thus it is secured, and if the sewing splint is wide enough it is also covered over, although this is not absolutely essential as the next stitch hides the end completely. After the stitch has been made the strip is folded back over it and drawn taut to the right, the second stitch lying over the bark, which is now face upward. This time the coil stitch is left on top, the bark ribbon being merely folded back again face downward to the left to permit of a third coil stitch being taken which will lie underneath the ribbon when it is again brought back right side up to the right. If the beaded effect is over and under one stitch alternately the ribbon is thus folded back and forth, lying face down to the left, so as to be out of the way when a stitch is to be made directly on the coil and face up to the right when the coil stitch is to pass over it. Where a different combination is desired one or the other of the processes is repeated without alternation with the other as many times as is necessary.

Another method of beginning the work is to place the ribbon right side up on the coil, with the left-hand end under the fingers at the point of sewing, the remainder lying to the right. This causes the first stitch on the coil to be exposed, and is a much less secure means of fastening the end of the ribbon. There are several ways of joining

strips, whether of the same or different colors. The explanation will be clearer if it be supposed that there are two colors. If a strip of red is finished, or it is desired to shift from red to black, the former is cut off just beyond where the final stitch will be made before the change. The left end of the black strip, right side up, is laid over the right end of the red strip, that is, the ends overlap, right side up (fig. 39, *a*), and a stitch is taken over both, concealing the junction and holding them firmly. Care is taken that the end of the new strip does not protrude to the left from beneath the stitch.

In a second method, occasionally used, the ribbons are placed end to end just touching each other instead of overlapping (fig. 39, *b*), so that the stitch covers the joining and at the same time holds both ribbons firmly. This is more difficult of accomplishment than the former method, because of the narrowness of the sewing splint. It is more commonly employed with "over and under two" than with "over and under one."

Instead of overlapping the ends of the ribbons of bark or laying them end to end, a few women place the new strip face down on top of the coil just beaded, with the end of the old strip and the beginning of the new meeting, both pointing to the right.

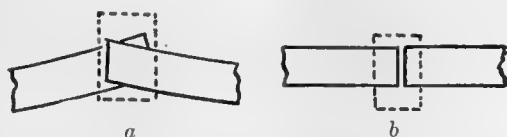


FIG. 39.—Joining of strips used in beading

After they have both been caught by the stitch, the new strip is folded back to the right over the top of the stitch and drawn tight, when the ordinary beading process is continued. With this plan, which has been used on a number of Thompson baskets, the stitch which fastens in the new strip is not exposed as in the other two methods, but is finally covered by the bark. The old strip, like the new one, extends a little beyond the stitch. While a few women know all of these ways of joining ribbons, following any which seems most convenient at the time, they all have habits of work more or less firmly established, resulting in their preference for certain ones.

As a means of ornamentation beading is still employed, particularly on lids and bottoms (pls. 3, *b*; 4, *a*; 8, *c*; 9, *c*; 10, *a*, *b*; 11, *b*; 50, *a*, *e*) and occasionally by the Lillooet on the walls (pl. 18, *c*³⁶). It will be remembered that a line of beading almost invariably defines the theoretical if not actual limits of the bottom, and serves to mark off the field available for designs. Not quite as often, it is found near the rim, delineating the top of the design field, while its appearance on top of the rim coil is by no means rare. There seems to be no rule for its application, but practically always it may be found in a single line near the base of the side walls.

³⁶ Another view of the same basket (pl. 57, *g*) shows that the beading is, as usual, confined to the side resting against the back of the person who carries the basket.

All of the women interviewed are well acquainted with its decorative possibilities and its simple technique and make most of the easier patterns that are found, while the experts have evolved a number of other very pretty and quite complicated designs which will be discussed later. In addition to making various patterns, a few women enhance their effect by regularly bifurcating the stitches on the coil above that which has been beaded.

IMBRICATION

Imbrication, which is the characteristic feature of modern baskets, is quite unique in the types of basketry technique of the world. Many of the design elements used, however, are found in the Plains, California, or the Southwest.

The material employed is the same as in beading, except for the occasional recent substitution of black cloth for black bark or dyed grass. The process is as follows: After being started as just described

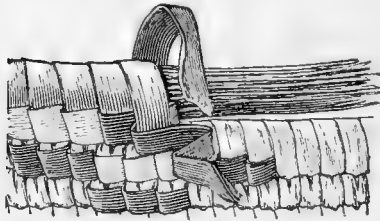


FIG. 40.—Method of imbrication

in the third method, the ribbon is bent back face upward to the right over the coil stitch which fastens the end. A second coil stitch is then taken, but not pulled tight. The bark strip is bent back on itself to the left, the sewing always progressing toward the right in normal cases. Care is taken that the fold

of the bark will come just where the half-finished stitch will lie. The fold is then slipped under the sewing splint, which is now pulled tight (fig. 40). The wet sewing splint holds the fold of the ribbon firmly. A sharp tug would be necessary to pull the bark from under it. As soon as a succession of stitches has been made, and the moist basket dries and "sets" a little, it becomes even more difficult to pull out the ribbon. Rather, instead of unraveling, the bark will break, because when dry it is quite brittle. At the completion of the second stitch the ribbon lies as it did in the beginning, and the same process is repeated for two stitches, as has just been described, and so a second imbrication is completed. When a change or addition of a strip is necessary it is made as in the third method of beading. The two processes of starting beading and imbrication are closely related, and imbrication may have developed from beading.

The effect of a line of imbricated stitches is that of a row of tiny overlapping shingles, only that the overlapping edges lie vertically, not horizontally, the left-hand edge of each "shingle" being on top.

In working, the bark is placed in position with the thumb and forefinger of the left hand, sometimes assisted by those of the right hand, which are also used for folding the bark back. When finishing an

imbricated strip the end of the ribbon of bark is caught under a coil stitch and then cut off close with a knife. Several women, when making a design consisting of a large field of one color, instead of cutting it off carry it through underneath the stitches which are to be worked in another color, placing the strips for the intervening imbrication on top.

One informant reduced the thickness of her coil very slightly where the imbrication was applied, by this delicate adjustment preventing an embossed surface. She explained that she desired an even thickness of wall throughout, and declared that several other women pursued the same plan, but none were observed by Mr. Teit. Coil reduction is accomplished by special tightening and tapping home of the sewing splint or by removing a small part of the foundation.

Because of the spiral construction of the basket, imbrication or beading which passes in the same coil completely around the basket can not be made to meet, but ends one row higher than where it began (pl. 8, *d*; 50, *c*), unless ring coils are used, which does not often happen; hence it is customary to arrange the designs so that any such breaks in the lines occur near one corner of a short end (on a rectangular burden basket) (pl. 3, *b*), but some bring the break on a long side, near a corner (pl. 8, *c*).

All informants of the Upper and Lower Thompson agree that no imbrication was placed on the bottoms of any kind of baskets, outside or inside, in former times. Even at the present day imbrication on the outside of bottoms is exceedingly rare. In small circular baskets an imbricated piece of work which was originally intended for a lid is now and then converted into a bottom.

According to Lower Thompson informants all bottoms were formerly devoid of beading except for the dividing line already mentioned, although a few Upper Thompson say that small circular baskets had bottoms of groups of beaded coils alternating with plain ones. The number in each group ranged from one to four. A few instances are on record of bowls the bottoms of which were beaded over the entire surface, except for one or two groups of from one to three undecorated coils. It is said that lids were treated in the same way. Very rarely the beaded designs on the sides extended to the center of the bottom. If they were placed in radial rows they all converged at the center. At the present day many trays are imbricated on the inside, at the bottom, and on the outside of the sides as well. Several Lytton people say that trays used for ceremonial purposes were ornamented in this manner very long ago. Whether those used in gambling games to toss dice upon were also ornamented was not learned. When designs are to be placed on the inside of a bottom it is considered better to make this section of the basket in

a separate piece. To use a watch-spring coil base, which is continuous with the side, adding the design as the work proceeds, is thought to be very slow and awkward. An imbricated bottom worked in the ordinary way—with the side which bears the design held toward the maker—is reversed after being completed and the walls are added with their designs, for, if it were to be made in one piece with the sides, either the design on it would necessarily be applied on the side away from the worker or else the coiling would have to be reversed at the rim of the base.

Where imbrication or beading was not desired, as was the case with the Shuswap, a very pleasing ornamental effect was achieved by the furcation of the coil stitches in alternate groups of coils, those between being sewed in the ordinary manner. At other times vertical or diagonal lines of bifurcation were attempted (fig. 41). Regular bifurcation was practiced only to a limited degree, and then chiefly on baskets ornamented only with beading or utterly bare. It was

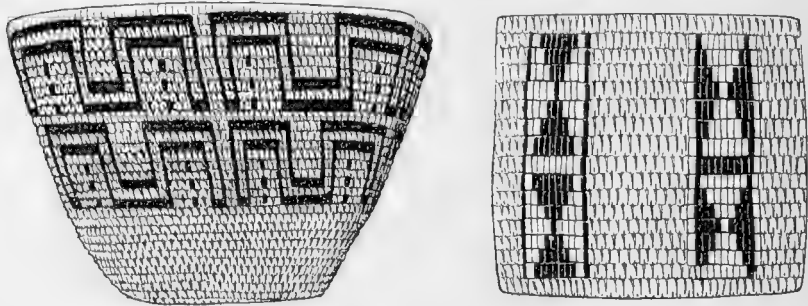


FIG. 41.—Bifurcation of coil stitches

used on bottoms, from the centers to the corners (pl. 6, *b*). As a rule the stitches are furcated, but the predominant aim is a water-tight product, even if regular stitching must be sacrificed.

A few other means of deriving an ornamental effect were tried and practiced to some extent. Darker tinted sewing splints were used on different coils, giving a banded appearance, and on rare occasions the use of larger or finer splints for sewing groups of coils was also attempted.³⁷

DESIGN FIELDS

GENERAL REMARKS

The Thompson informants all agree that any design may be used on any kind of basket and that its selection does not depend on the type of bottom used.

On round, high forms resembling the modern pail practically any type of decoration may be successfully applied. The continuous, unbroken wall surface lends itself equally well to horizontal arrangements in bands, to vertical stripes, all-over arrangements of isolated

³⁷ See also Teit, *The Lillooet Indians*, pp. 205 et seq.

figures which may be aligned horizontally, diagonally, or vertically, to diagonals and spirals; in fact, to practically any type of decoration, even that which cuts the basket surface into two sections. All of these are found with the exception of the last. Vertical decoration, however, including stripes, is rather uncommon on these shapes.

Flat tray forms are best adapted to designs which radiate from the center, and the Thompson recognize this very clearly. Most of the women express a preference for the radial arrangement of designs on flat round shapes (pls. 17, *f*; 44, *e*; 52, *c*; 54, *c*), saying that those which "lay across" the field were not "good." (See pl. 50, *f*.) By this they meant patterns which ignored the relation of the center of the circle or oval.

They feel that certain patterns do not permit of satisfactory adjustment on some lids and trays. Often in trunk-shaped baskets the design on the body is carried over to the lid and converges there, a treatment which makes its adaptation at times more or less difficult (pl. 48, *b*). Circular bands are frequently used on trays (pl. 54, *b*). The women try to have the radiating portions of the design equidistant, but this is often difficult to do when working only by eye.

BURDEN BASKETS

The rectangular burden basket offers an entirely different problem. Nevertheless many of the typical patterns of round baskets, such as horizontal bands, diagonals, and spirals, are used on the modified and rectangular shapes. Evidently such types of ornamentation have always been in existence on imbricated basketry. This corroborates the tradition that the burden baskets were formerly round and high, like the Klickitat baskets still manufactured. The Klickitat, who do not use the rectangular shapes, decorate many of their tall round burden baskets with wide horizontal zigzag bands which reach from the base nearly to the rim.

Rectangular forms.—The Lillooet, Chilcotin, and Thompson Indians have all adopted the rectangular forms, and while other shapes are also produced, particularly by the Lytton band of the Thompson, the most interesting problems of decorative designs center around the burden baskets with their trapezoidal fields, and it is here that the most striking tribal differences are apparent, even though a certain degree of assimilation prevails owing to intertribal intercourse. The Thompson now possess several distinct styles, some of which are closely related to the typical patterns of the Lillooet and Chilcotin. A characterization of the Thompson style is made difficult also by the development of peculiarities among the various local bands. Broadly speaking, however, the products of the different tribes may be distinguished by the arrangement of the design field.

Lillooet designs.—Lillooet designs are divided horizontally into two fields, the upper and larger one with imbricated background covering the entire surface and bearing one large design in outlines, which occupies the whole space. This is sometimes divided vertically into two complementary and symmetrical sections. There are perhaps eight or ten designs of this character and rectangular in construction. As an accompaniment of these, there extend from this field into the lower, which has a plain, unimbricated background, two or three vertical stripes—droppers—bearing small geometric figures. Plate 18, *a*, represents a Lillooet basket in which the upper half has no imbricated background.

In a second characteristic Lillooet type of decoration the field is ornamented with vertical bands ascending from base to rim (pls. 35, *b*; 37, *a*; 57, *a*). Many baskets of this class are constructed of broad flat coils which are distinctive of the Lillooet.

On many Lillooet burden baskets the side that lies against the back of the person who carries the basket is beaded. (Pls. 18, *c*; 27, *h*; 55, *g*; 57, *c*, *g*.)

Chilcotin designs.—Almost all the Chilcotin baskets have three decorative fields, the upper and lower imbricated entirely, and bearing designs which are alike, the middle being either unimbricated, except for lines crossing it and connecting the other two fields (pl. 59, *a*), or imbricated, bearing totally different patterns (pl. 60, *a*).

Other tribes.—Mr. Teit says:

That the basketry of other Interior Salish tribes also had peculiarities seems likely. So few specimens are obtainable nowadays from the Shuswap and southern Salish tribes that it is impossible to ascertain their styles of ornamentation. The Shuswap claim that although some of their baskets were so much like those made by neighboring tribes that they could hardly be distinguished from them, yet on the whole a Shuswap product could be told from others by its general appearance, there being certain minor points in workmanship, shape, and designs by which it could be identified. Yet in the absence of specimens it has been impossible to learn the exact nature of these differences. The same is said of the basketry of the Moses,³⁸ Columbia, and Wenatchi, although it seems that on the whole the arrangement of the ornamentation on their baskets was similar to that of the Thompson.

Thompson designs.—Long ago, according to native informants, three ways of dividing the design field of burden baskets were in use among the Lower Thompson, perhaps also among the upper bands.

First type. The field was arranged in two sections. The upper occupied about two-thirds of the entire side, the lower one-third. Occasionally the two sections were more nearly equal. The upper was imbricated over its entire surface with a light background and dark designs, but on the lower the designs appeared on a background of bare coils. The designs in the two fields were unrelated. Some-

³⁸ These people were commonly called by this name after one of their prominent chiefs.

times each field contained only one design, but occasionally there were two (pl. 19). This style closely resembled one still employed by the Lillooet (pl. 20, *a, b*). Plate 21, *c*, represents a modern copy of this old style as well as of the old, somewhat rounded form of burden basket.

Second type. There are also two fields, but the upper occupies about three-quarters of the entire surface and carries the designs, while the lower is left plain, without any imbrication. If patterns appear at all, they are merely lines of beading. (Pl. 22, *a, b; c* is a modern adaptation.) As far as the informants could recall, no "droppers" like those on Lillooet baskets were ever used by the Thompson, no matter what type of ornamentation was applied.³⁹

Third type. It was less common, but still frequent; characterized by the use of three fields, all about the same width, the upper and lower thirds imbricated all over for background and design, while the middle third lacked the imbricated background. In some instances the central field was entirely imbricated, both background and design, while the upper and lower fields carried only imbricated or beaded designs on a plain background (pl. 24, *d*). Either the three fields carried different designs or else the upper and lower thirds had the same pattern, while the middle area was different. Occasionally baskets with this style of ornamentation bore imbricated vertical bands crossing the central section at regular distances, connecting the upper and lower fields. They were usually narrow and contained small designs. The Lytton people used this scheme of decoration quite frequently.

Nowadays very few if any Thompson baskets are decorated in any of the above-mentioned ways, but the first method is common among the Lillooet, while the third is characteristic of the Chilcotin (pl. 8, *a*). An example of a Thompson basket of the third style is probably represented by Plate 24, *a*.

Mr. Teit summarizes his long-continued observations in the field as follows:

Thompson baskets, especially burden baskets, usually have no imbricated field in which the designs are set. As a rule, the bare coils of the basket form the background, the designs only being imbricated, and worked in three colors, red, white, and black. When this is not the case, as happens in less than a quarter of the baskets made, then the whole is imbricated with white straw, excepting the designs which are in bark, usually dyed red or black. Sometimes white (straw) is used as a filler in the design when its character permits this. Occasionally two-thirds of the basket surface is imbricated with bark, as in checker designs of all-over distribution, where all three colors appear in equal proportions, but in this case no one color can be called the background. Red is the preferred color when only one is used, black is next in popularity, but white is seldom used except for backgrounds. The exceptions to the single field of designs on modern baskets are very few.

³⁹ See, however, remark on p. 232.

During many years Mr. Teit has noted only three or four Thompson baskets with designs arranged in three fields. One of these was imbricated only in the central zone, the others being ornamented solely with beading. Another similar to this had a middle field equal to about half of the entire surface, while a third one was imbricated over the upper two-thirds and had a narrow imbricated band at the bottom with several vertical bands connecting it with the upper fields. Mr. Teit says that it is one of very few specimens he has seen with indications of "droppers" which are such a common feature of Lillooet baskets. He has noted some eight Thompson baskets imbricated over at least the upper two-thirds, with unimbricated lower sections without even a trace of designs. A modern style, quite common, is a grouping of designs into two sections, one of which occupies more than the upper half of the surface while the other covers the remainder, and these two groups differ in type of pattern used.

Other varieties of present-day Thompson styles which are mentioned by Mr. Teit are the division of the field into horizontal bands encircling the basket, all-over patterns, such as "net" or "mesh" designs, and the large rectilinear designs before mentioned which occupy one or two fields on the basket face.

The vertical arrangement of designs in imbricated stripes which traverse the unimbricated faces of the baskets from base to rim has not been discussed by the Thompson themselves, nor have we discovered any notes concerning it from Mr. Teit. At the present day it is one of the most common arrangements and probably has persisted from the earliest times to the present, although it has not always been so popular as now.

The specimens collected show that the single field has become popular in recent years. Three varieties of this style have developed. In the first, the whole basket is imbricated with the exception of a small section at the bottom, and the designs occupy the whole field (pl. 23, *a*). In the second, the basket is left bare, except for the designs themselves, which are imbricated and, as in the first instance, cover the entire field (pls. 18, *d*; 22, *d*; 23, *d*; 24, *b*; 77). The third resembles the second, but the designs are in two series, one above the other. This recalls the first of the three ancient types, except that the upper section lacks the imbricated background (pl. 24, *c*). These last two varieties are far more common than the first.

It is odd that most of the Thompson men admire the Lillooet baskets rather than those constructed by their own people. Many express a liking for even and regular stitching and coils, and although serviceability impresses them, they prefer to see it combined with fineness of workmanship. A few of the men show a marked preference for certain designs, and consider the women who make them very clever and ingenious.

Aside from the Lillooet type of two-field decoration mentioned above and the single or double unimbricated background field bearing imbricated designs, there are among modern Thompson baskets specimens showing the imbrication of background on the upper half of the surface with mixed designs in both fields; there are also entirely imbricated baskets bearing classic or modern figures set "all-over" fashion in a white background. (Pl. 23, *b*.) These are frequently made as gifts.

The fact that the informants in discussing old styles began with the division into fields is probably merely an indication that this type differs from the ordinary modern forms and that it is striking. They can not now trace its origin, but recognize its similarity to Lillooet and Chilcotin arrangements. Like all people, they are inclined to ascribe the invention of cultural forms common to themselves and to their neighbors to their own creativeness.

As remarked before, the baskets of the Thompson, Lillooet, and Chilcotin may be distinguished not only by the arrangement of the designs but also by various technical features. Thompson coils are finer than those of the Lillooet and very uniform in construction. In burden baskets the coils of both tribes are of nearly the same texture, but the sewing splints of the former are finer and the diameter of the coils smaller. The wall construction among the two tribes is alike, for both can build perfectly smooth straight walls, without bumps or any unevenness, vertically or horizontally. The shapes, however, are different, the walls of Thompson baskets being drawn in more nearly to a vertical direction than the Lillooet, which flare unrestrictedly to the rim. Thompson baskets stand on broader bases and present a less angular appearance, the corners being fairly rounded even in their most angular specimens.⁴⁰ As stated before, the division of the basket surface into two decorative fields, and also the presence of beading in place of imbrication in the upper section on one or two faces of the basket, is characteristic of the Lillooet style. It is instructive to observe, where similar decoration of field is concerned, the differences between the two tribes as shown in Plate 24, *g*, a Thompson, and Plates 24, *e*, and 76, Lillooet baskets. The baskets of the Chilcotin are characterized by remarkably fine stitching, accurately bifurcated splints, uneven coils, bumpy walls, and a rim which is higher at the ends than in the center of the sides.

The types found in the collections which we have studied do not wholly agree with the descriptions given by the Indians. A great many old baskets have entirely unimbricated backgrounds bearing simple beaded or imbricated horizontal, vertical, and diagonal lines or small figures.

The lines are usually quite narrow, the horizontal commonly consisting of one coil beaded or imbricated, the diagonal or vertical being composed of series of two or three imbricated or beaded

⁴⁰ See also p. 222.

stitches. Of these very many show only horizontal lines encircling the basket at regular intervals. A number of modern specimens are exactly of the same kind. The horizontal lines are imbricated or beaded (pls. 8, *d*; 9, *a*; 27, *d, f, g*). The diagonal (pl. 31, *b, d*) and vertical lines (pls. 14, *a*; 34, *a-c*; 35, *b*) and the horizontally or vertically trending zigzags are imbricated (pls. 10, *a*; 11, *b*; 14, *e*; 18, *a*; 22, *c*; 23, *c*).

USE OF COLORS

Only rarely is any fixed connection established between color and design, the aim usually being merely to obtain a contrast. In the arrangement of parts, white is often employed to separate red from black or as a border around patterns executed in these colors. It is always used for backgrounds, except in rare cases on small baskets for which enough purple has been secured. Perhaps because there are so few colors in use, practically any design may be carried out in any one of them, and usually no attempt is made to give a more realistic effect by selecting the one most suitable. For instance, panthers may be black, red, white, or spotted. Of the few known designs which are always carried out in the same color, those representing rain, hail, and snow are examples. The first is invariably red or black, the last two are white, snow being differentiated from hail by its spotted formation. Where berries are depicted the red currant (*laā'za*) is red, the service berry black.

Attempts were occasionally made to take advantage of the natural colors or shades of splints and grass. The darker colored splints used for sewing were put in one place and the lighter in another. Thus a basket might have all the lower coils, perhaps a third of the entire surface, imbricated in dark colors, the rest being lighter. Also, in the same way but more rarely, grass was selected according to its color—white, yellow, or purple—and used (each color by itself) for imbricating certain sections. Baskets imbricated entirely in grass were very rare. However, this plan of segregation of colors was not often adopted, owing to the great diversity in shades of a given color.⁴¹

BEADED DESIGNS

There are not many photographs of baskets bearing beaded patterns, and in the few that do illustrate this technique the work is of the simplest kind which in the photographs, unless taken at close range, is not to be readily distinguished from imbrication. Mr. Teit has furnished a number of sketches of different patterns which he has seen during his many years spent among the Thompson Indians and these are reproduced here with such comment as he has supplied. It will prove instructive to return to these figures after the study of imbricated design has been completed, in order to note

⁴¹ See p. 153.

the many similarities between patterns produced in the two kinds of technique. He has been unable to determine whether the imbricated designs are derived from beaded designs or vice versa, since no actual history is known. It seems as if imbrication as a technique may have been the result of an attempt to solve the problem of obtaining a continuous line of color without the intervening coil stitch always necessary in beading.

From the series of simple beaded designs given by Mr. Teit in Figures 42-45⁴² it seems that some of the most likely combinations, such as two rows of over and under one, alternating, were not seen by him, although several rows of this technique occur occasionally.

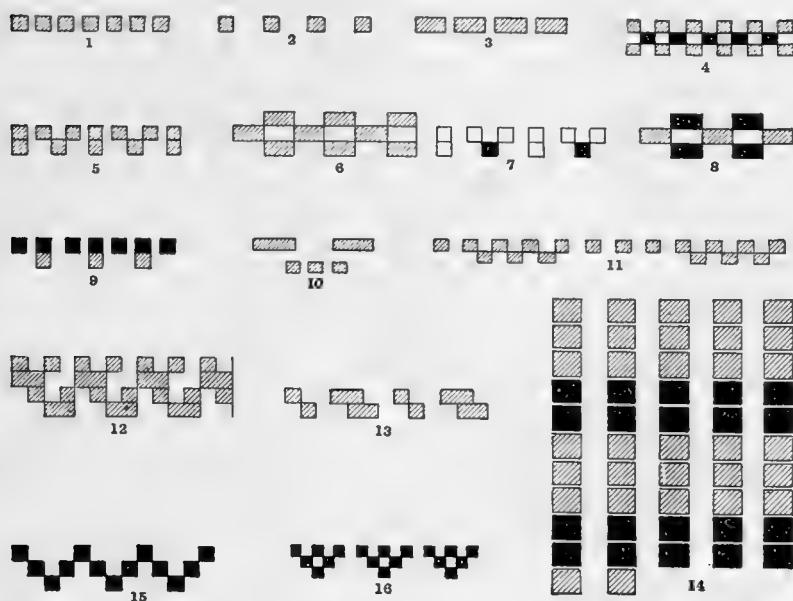


FIG. 42.—Beaded designs

The very simple combinations have given way to more complicated forms, and even these are falling into disuse, for beading is going out of style.

Nos. 6 and 12, Figure 42, sometimes formed connected patterns covering the whole surfaces of baskets. They were also used in bands. Nos. 4 and 8 were common in bands three to five coils wide, between which bare spaces of equal width were left. No. 14 was a very frequent pattern. All of the others shown were used in bands of different sorts with bare spaces between them. Nos. 1-5, 7-10, and 16 were at times employed as borders along the rims of baskets. Some baskets were ornamented with two or more patterns, such as a border, for instance No. 1 or 5, which covered one or two coils, and

⁴² In these sketches diagonal shading indicates red, solid black, black.

below this extending over most of the side a pattern such as No. 14, while below this might be a band like No. 6.

Of late years certain beaded patterns have become more popular than others. Those noted recently are shown in Figure 42, Nos. 1-8 and 12-14. Nos. 9-11, 13, 15, and 16 are said to have been used formerly, as well as several others of which exact descriptions were not obtained.

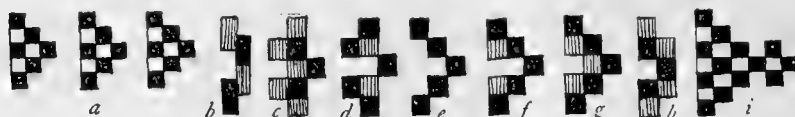


FIG. 43.—Beaded designs

Figure 43 represents beaded designs related to the type just described.

The so-called woven design shown in Figure 44, *a*, is made by two women of Spuzzum and by one woman living among the Upper Utā'mqt. It is used as a single pattern once only on each face of a

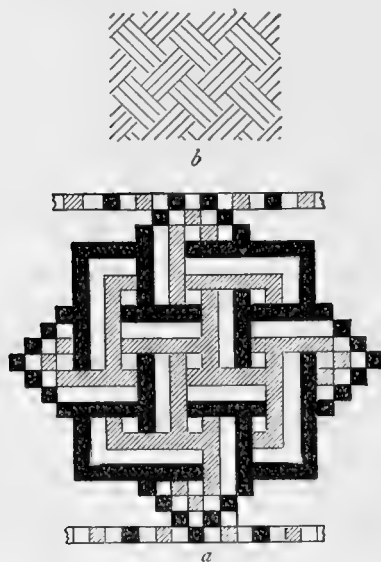


FIG. 44.—Beaded designs

basket, but the upper and lower single-stitch border runs entirely around all four sides. The pattern here shown was copied from a small carrying basket belonging to Mrs. Guichon, of Port Guichon, British Columbia. The basket measured 8 inches deep, the mouth was $10\frac{1}{2}$ by 13 inches, the bottom 5 by 9 inches at the line of beading which marks this part off from the side walls.⁴³

It is said that patterns like this are occasionally used, and according to one informant, an Utā'mqt woman, they are loaned and copied.

Figure 44, *b*, gives the pattern known as "woven design, short ends." The intricacy of the interwoven, continuous bands is quite

foreign to Thompson basketry art. There is no information available regarding the possible derivation of this pattern.

IMBRICATED DESIGNS

The statement of the informants that long ago burden baskets were round is substantiated by the fact that the old examples have rounded corners and are decorated, as we might expect, by designs

⁴³ The pattern gives the impression of being in part, at least, imbricated. Continuous lines can not be made in beading.

suitable for conical or cylindrical shapes, such as horizontal lines, zigzags, and small figures arranged in spirals which partially encircle the baskets as they ascend from base to rim, without regard to corners. In addition to this, round baskets showing similar artistic treatment are still occasionally made. Modern rectangular shapes which are decorated in one of these ways are fairly common. Evidently such types of ornamentation have always been in existence throughout the life of imbricated basketry in this region. In fact, unimbricated backgrounds, bearing groups of small designs, are more typical of Thompson basketry art than any other kind of decoration.

The Thompson like to use the same pattern on all sides of a basket, whatever may be its shape. Square and oblong forms are well adapted for the short ends. Different designs might be used on the long sides, because the sides are separated from each other by the corners. Yet the people do not seem to have realized this, for their designs are arranged in a way which would be equally effective on cylindrical shapes. Only four or five specimens have been seen with decorated sides and bare ends and none with end designs only. Two or three were noted in which ends and sides were different but none in which the patterns on either side or end were fundamentally different from those on the other.⁴⁴ The Lillooet and near-by coast tribes have a curious habit of ornamenting two sides and an end and leaving the other bare or giving it a different decoration. This plan has never been adopted by the Thompson.

ARRANGEMENT OF DESIGNS

In the arrangement of designs on the basket walls there seem to be some rather definite tendencies which Mr. Teit has noted in the following manner. The numerical listing corresponds to the degree of popularity prevailing for the particular arrangement.

A. Separate or disconnected figures:

1. Vertical rows.
2. Horizontal rows.
3. Diagonal rows.
4. Zigzag rows.
5. Scattering.
6. One figure occupying the entire field.
7. All-over arrangements which may be considered in any one of the first three classes.

B. Connected figures:

1. Vertical.
2. Horizontal.
3. Diagonal.
4. Vertical (in banded arrangements).
5. Horizontal (in banded arrangements).
6. Diagonal (in banded arrangements).

⁴⁴ The observations made by Mr. Teit extend over many years, during which time hundreds of baskets were examined.

C. Figures connected by lines:

1. Vertical.
2. Horizontal.
3. Diagonal.
4. Zigzag.
5. Not conforming to any of the above, such as net designs, or to be regarded as belonging to any of the first three classes.

D. Designs composed of lines:

1. Vertical (straight, zigzag, or meander).
2. Horizontal (straight, zigzag, or meander).
3. Diagonal (stepped, straight).

E. Combinations of figures: Frequent and numerous.

F. Fillings⁴⁵: Sketches 39, 42, 159-162, 222-229, 231, 232, 245, 246, 254, 278, 281, 303, 398, 525, 529, 547, 859.

G. All-over: Close connected or open arrangement. Sketches 244, 264-267; more rarely 24, 268, 272, 274, 275, 288, 289, 293, 307, 308, 564, 565, 689; rarely 399, 400, 402, 457, 536, 537, 558, 559, 563.

There are some designs the arrangement of which has become so fixed as to be almost invariable.

Of the separate figures (Group A), designs 222-229, 231, 232, and 859 are practically always scattered over the surface. Designs 135, 237, 240, 241, 261, 271, 311, 328, 339-341, 511, 548, 608-615, 686, 700, and 701 are practically always found as a single figure occupying the entire field. Designs 222-229, 231, 232, 240, 241, 339-341, 547, 548, 615, and 859 are also sometimes seen in smaller dimensions arranged in vertical, horizontal, or diagonal rows. Designs 268, 272, 274, and 275 generally form horizontal zigzags, and 700 and 701 are also sometimes found arranged in this manner. Designs 135, 149, 237, 261, 271, and 511 are occasionally seen in vertical or horizontal rows, but the last named is more frequently horizontal than vertical.

Of the connected figures, 245, 247, 252, 254, 278-281, 284-285, 288, 289, 329, and 330 are generally vertical, while designs 293 and 307 are found about equally in vertical and horizontal arrangement. Designs 264-267 are generally arranged horizontally, as are 315 and 316 occasionally, although these are more often arranged diagonally. Designs 42, 138, 141, 246, 249-251, 257, 292, 298, 301-304, 332, 334-337, 529, 532, and 533 are always seen in stripes, usually vertical, rarely horizontal. The elements, however, are placed along the stripe in zigzag or diagonal alignments or are separated from each other by stepped or diagonal lines.

Of the figures which are joined by lines, 78 is usually placed in horizontal zigzag arrangement; 244, 308, 564, 565, and 689 are arranged all-over fashion and may be regarded as in vertical, horizontal, or diagonal series, depending on the point of view; but 562, 564, and 565 are also not infrequently placed in single horizontal rows.

⁴⁵ These numbers refer to Plates 78-94. The numbers here given and those contained in the following paragraphs are taken from Mr. Teit's notes. They could not be checked from available specimens.

There are many common arrangements not mentioned here, which may be seen in the photographs, and others are taken into account in the sketches themselves, which often give not only the pattern itself but its arrangement. While Mr. Teit says that this classification is not complete, he thinks that the great majority of figures are included in it.

Vertical arrangements include the alignment of figures one above the other in an open formation, two or three or more series occupying one face (pls. 15, *c*; 25, *c*, *d*; 26, *a-f*), or the confinement of patterns to vertical stripes having straight edges, which appear like a ribbon on which the designs are set (pls. 10, *b*; 11, *a*; 12, *a*, *b*; 26, *c*, *d*, *e*, *h*; 51, *f*, *j*). These are imbricated in dark or light straw or bark, while the figures are wrought in contrasting colors. Such vertical stripes are very popular as decorative schemes. Whether or not this idea also came from the Lillooet is not known at the present time. As a method, it bears marked resemblance to that employed by them on low-walled, long storage baskets (pl. 15, *a*, *b*), as well as to the droppers which are pendent stripes extending down into the lower field from the upper. (Pls. 18, *c*; 29.) Plate 30 illustrates the use of the droppers by the Lillooet. Vertical lines decorated with various types of patterns may be observed in *a-e*, *g*, and *k*. There are, however, also a variety of designs used in the field ordinarily occupied by the droppers. Isolated lines occur in Plates 30, *l*; 51, *c*, and 58, *a*; triangular figures in Plate 30, *m*; beaded horizontal stripes in Plate 30, *h*; and a number of larger figures may be seen in the remaining illustrations on this plate.

Whatever the origin of the stripes may be, the Thompson have given to them something of their own individuality and have adopted them to the extent of almost supplanting many of the other artistic forms that once prevailed so widely. Of necessity the figures in the "ribbons" are small, and in this respect they resemble most of the other elements which are combined in different ways on typical Thompson products. They are also infinitely varied. Since from many points of view they have influenced the modern art to a great degree, and since there are so many possible ways actually in use of subdividing these long narrow spaces into figures, it seems best to postpone a discussion of them until the last and to dispose first of the horizontal and "all-over" distributions and of large designs which are not in series.

There are two varieties of horizontal arrangement. The first is in several series or bands; the second is composed only of one, which generally encircles the basket about the middle, but more rarely in the upper half. The simplest figures are mere lines, as has been said before. Sometimes these are interrupted by small rectangles divided into three sections. (Pls. 21, *d*; 27, *d*.) Except for

these, or numerous adaptations of the zigzag, or the disposal of figures such as right angles, diamonds or triangles, the horizontal arrangement is not very often used. (Pls. 12, *c*; 28, *a, d*; 36, *b*; 41, *a, j*; 51, *b, d, k*.)

The diagonal series usually begin at the left side below and run toward the right above. On rectangular shapes the diagonal may merely traverse one face of the basket from base to rim, or it may extend over to another face, without regard to the corner, in which case it is called spiral. There are no variations of the diagonal arrangements, except in direction to right or left, as there is always a continuous series starting along the base, never only one to a field.

Diagonal distributions are very common and aside from the ordinary zigzags, include series of small squares, rectangles, triangles or "little spot" designs. (Pls. 25, *a*; 27, *e*; 28, *c, h*; 33, *a*; 36, *k*; 50, *b*; 51, *e, i*; 77.)

The all-over distributions of small or large figures are always orderly and usually permit of a consideration as horizontal, diagonal, or vertical, according to their size and spacing. At any rate, the elements are generally aligned in at least two of these directions, instead of being scattered aimlessly, although Plates 27, *e*, and 41, *c*, show an exception. Plates 25, *a, b, d*; 26, *g*; 28, *e*; 42, *e*; 47, *d*, and the frontispiece are examples. The arrangement on the basket Plate 27, *e*, might be considered as horizontal or diagonal, although the last is more obvious. The example in Plate 47, *d*, is a similar case, really identical except that the vertical distance between figures is less than the horizontal, thus giving the effect of vertical rows, especially with the added emphasis in color. Plate 25, *b*, shows a predominating horizontal arrangement, because the distances between the figures in that direction are less, and because the vertical alignment is imperfect. Plate 25, *a*, gives an unmistakable diagonal, not only on account of the color but because of the interruptions in adjoining rows in other directions. The crosses, which are the elements, are quite rare as outlined figures. Single elements are not often large, and on this account these are also unusual. In Plate 25, *d*, and the frontispiece the arrangement may be considered as either vertical or horizontal. The feeling for the diagonal has been minimized by the exact alignments in the other two directions as well as by the closing up of the series in a vertical direction. It is rather interesting to note that in the examples given the diagonal elements are predominant.

Designs resembling the head, mouth, intestine, and other such figures are employed in all-over effects by the Thompson, as well as in vertical stripes and two field distributions. The figure is called by them "half circle." Plate 32 illustrates some of these types. Whether these circles are adaptations suggested by the larger figures or vice versa is not known. They occur more frequently among the

Thompson than among the Lillooet, where, however, they are not lacking. Plate 32, *b*, pictures an all-over distribution in the upper field adapted to the typical Lillooet style. In present-day Thompson baskets these patterns are not often seen.

Large single patterns are not very numerous. They are probably all of modern conception. The pattern shown on Plate 33, *b*, was introduced by an Utā'mqt woman, who called it "leaves and ferns." It is obviously derived from the hammer pattern, although so differently interpreted. Plate 28, *f*, shows a variation of the widely known "leg" design; Plate 28, *g*, what was interpreted as part of an arrow design; Plate 33, *d*, merely part of a design, the remainder of which is probably carried over to the other side of the basket. More data about these patterns would be very desirable; for instance, whether they were taken from other articles, such as blankets. Surely the last pattern suggests "borrowing," since it is placed in a manner foreign to the usual basket arrangements and is too large for proper presentation to the eye at one glance.

For several reasons it would seem that the large rectilinear designs are of foreign extraction. In the first place the upper half of the surface which bears these designs has an imbricated background, a trait which, except for the few definite patterns always appearing with this style, is seen only in a few very modern specimens which differ from the older art in design, material, shape, color, and general treatment.

Secondly, the patterns used in this type of decoration number about six or eight only. They are large. Generally Thompson designs are small, or if they assume any considerable size they are cut up by checkerwork or some other form of subdivision, which does away entirely with any considerable plain surface inclosed in outlines. Thirdly, these designs are all rectangular. Thompson designs as a whole show fewer rectangles than any other figures, and when these do appear they are small. The large outlined square, or anything approaching it excepting for these few designs, all of similar type, is conspicuously absent. Fourthly, these same six or eight patterns are typically Lillooet.

The early type of simple Thompson baskets, characterized by the undivided field and unimbricated background, is still produced in large numbers and has always been one of the commonest styles in use. The division of the field is made according to Lillooet standards, with designs worked partly or wholly on unimbricated backgrounds. It seems likely, therefore, that the fashion of so dividing the surface into fields came into vogue at a later time. With these, as part of the complex, came the peculiar designs always associated by the Thompson with this style, the so-called head, mouth, hammer, intestine, grave-box, and similar patterns. Any of these alone fills the entire upper or lower field, and is, according to the particular design, either

one large figure or two halves divided vertically, facing each other symmetrically.

On the *parflèches* of the western plains the rectangle is rather conspicuous, not only as represented by a single line running around the edges of the flap, but as a smaller design element. In all sections of the plains the two flaps of the envelope are treated in the same fashion, so that two complementary sections result. This same idea is presented in the Lillooet mouth patterns, although these particular designs do not seem to be part of the *parflèche* group. Nevertheless it seems quite possible that some connection exists between the two. These patterns are quite popular among the Thompson, and the many baskets adorned with them form no inconsiderable group. Plate 29 shows the ends of two Lillooet baskets and one side with the head and intestine designs, respectively. Plate 20, *a*, also shows the head design, as does Plate 57, *f*, with the head pattern occupying the lower field. Plate 30 illustrates Lillooet work with large symmetrical designs. It is also distinguished by the "droppers" and by imbricated backgrounds in the upper field. Except on some of the newest baskets, all of these patterns are more or less related artistically, and as used by the Thompson include to a large extent all that they possess which resemble outlined squares or rectangles.

Whatever may be the history of the typical Lillooet style as found among the Thompson, the fact remains that the most usual method of decoration is that of placing imbricated designs on an unimbricated background which is all one field, although there is a variation of this with a two-field arrangement where the lower one may or may not be totally bare.

THE VERTICAL STRIPE

The vertical stripe is a comparatively narrow space inclosed by vertical lines usually extending from base to rim but occasionally running down from the rim for about two-thirds of the way. It is executed in a color contrasting with the background of the basket, and set off by perfectly straight edges. Within the boundaries of the wider stripes there are many possible arrangements of small designs which frequently give rise to other designs as the result of the small remaining spaces of background on the stripe itself. Such "by-product" or reverse patterns, if the term may be used, are most apparent when the real designs extend to the edge of the stripe, thus definitely cutting up its whole width. This method of decorating basketry by means of vertical stripes is not unknown to the Lillooet, as has already been indicated. Short stripes are often seen in the so-called droppers, while completely developed forms are also present. The Lillooet specimens give many illustrations of these, of which good examples may be seen in Plates 7, *c*; 10, *b*; 15, *a*, *b*.

The vertical stripe is usually entirely imbricated. In its simplest and probably most common form it consists of a series of checks, either small squares or small rectangles standing on end. (Pl. 33, *c*.)⁴⁶ Very narrow ones are composed of one series of such rectangles. Another variation is a series of four or five vertical lines, cut up into small sections by changes of color. (Pl. 34, *a*.) The sections are about as long as the whole series is wide, so that they form squares. Still another variety is composed of alternating dark and light narrow vertical lines, about five or seven of which constitute a stripe. At intervals these are interrupted by a short section of checkerwork. (Pls. 7, *a*; 34, *d*.) There are others composed of small squares extending down the center of the stripe. (Pl. 34, *c*.) Uninterrupted vertical lines are also seen. (Pls. 34, *b*; 35, *b*.)

There is no rule regarding color. Stripes may be black or red with light figures, or light with dark figures, while their edges may or may not be outlined with contrasting colors. Plate 34 illustrates various forms of vertical stripes in which only vertical and horizontal subdivisions are employed.

Another very popular way of ornamenting the stripe is by means of parallel diagonal lines, in the handling of which several ingenious variations are noted. The most common is that involving long diagonals, which slip past each other, giving a clear effect of parallel lines with no very apparent "by-product" patterns. These are illustrated on Plates 26, *h*, and 35, *c*, *d*, *e*.

There are other shorter, thicker diagonals, the adjoining lines beginning or ending on the same level, instead of slipping past. If the stripe is narrow, so that the corner of the one just finishing about touches that of the new one just beginning, the reverse patterns along the sides of the stripe consist of two series of superimposed right-angled triangles, the apex of one touching the base of the next. If the parallel lines trend toward the right, as they usually do, the series of such right-angled triangles on the left turn down, those on the right turn up. (Pl. 40, *a*.) If the lines trend to the left the positions of these two series are reversed. Sometimes, when the stripe is wider, two parallel lines are found on a level instead of one, which, except that they are a bit out of line with those on the next level, might give the impression of slipped diagonals. (Pl. 36, *g*.) Much of the general effect depends upon the width of the stripe and the comparative width and length of the diagonals. Plates 37, *a*; 43, *c* (a storage basket), show this type of decoration where the lines, although no thicker than those shown in the plates illustrating slipped lines, are, because of their shortness and relative width as compared

⁴⁶ The vertical zigzag belongs neither to the vertical series of small figures nor to the vertical stripe with straight edges. It is included here for convenience. See also Pl. 33, *e*, which is a photograph of a rather old specimen.

to that of the stripe, almost rhomboids. In this style of art they seldom are wide enough to give that impression, as they do in Californian baskets, and in addition, they are here almost always associated with the vertical stripe, whereas in California they are usually connected with the spiral or diagonal.

Where the design figures do not come close to the edge—and here again, closeness is only a comparative term, depending on the width of the stripe and the width and shortness of the figures—the reverse designs appear not so much like triangles as like vertical lines with serrated edges. Plate 37, *a*, demonstrates this. Although in this sample the lines extend to within one stitch of the edge and in diagonal patterns the edge is almost never broken or interrupted (see pl. 39, *c*, for a rare, exceptional specimen), the figures are so broad and short that these single stitches along the edge form a distinctly continuous line. (See also pl. 49, *d*.)

Next to the checker stripes, those enlivened by diagonal parallel lines are the most common of any to be seen on either Thompson or Lillooet baskets.

There are besides these many other combinations which will be treated briefly. Perfectly plain stripes are occasionally seen, especially on newer baskets. (Pl. 36, *e, f*.)

The zigzag is more rarely used than might be imagined. Plates 37, *d*; 42, *g*, show two of the few examples. The employment of diamonds formed by an intersecting zigzag is also rather rare.

The chevron is a popular figure on the vertical stripe. Plates 37, *e*, and 38, *d*, show it in the usual position and color, light on a dark ground. Plate 38, *c*, gives a variant, not only because of the reversed color but also because of the alternations in direction of the chevrons on the different stripes. Occasionally, as in Plate 42, *g*, a combination of up and down turning chevrons occurs in one stripe resulting in the diamond in the middle. This is exceptionally ornate and beautiful.

Triangles in vertical series turning up or down are also employed on vertical stripes. (Pls. 37, *b*; 39, *a*.) In either case the reverse triangles along the sides are necessarily on the same level. In fact, the reverse triangles are always so situated in opposite pairs, whether they turn in different directions or not. It is this fixed character of reverse patterns that is most striking, for an uneven alignment is not impossible. Did such an arrangement occur, there would be no very evident design down the center, a condition which is utterly foreign to the Thompson stripe, unless the whole stripe be divided from side to side by diagonals, as is shown in Plate 39, *c*.

Because of the truncation of the triangles in Plate 39, *b*, and the short distances between vertical stripes, it is difficult to decide which is the design and which the background. The black triangles

arranged along the white stripe are much more evident at first glance than the vertical stripe with its straight edges and central design of truncated triangles, yet it would seem that this is the form intended, judging by other stripes of similar character. It would be quite impossible for the maker not to see the other possibility involved here, and that the people did observe the charm of the reverse patterns is evident in many of the baskets of this group. Basket *i* in Plate 36 shows this recognition in the stripes which are like those of Plate 39, *b*, but with dark triangles doubled symmetrically. There is no doubt that arrangements of triangles such as these are suggested by reverse patterns. The division of the stripe vertically into pairs of two right-angled triangles occasionally gives rise to a very curious arrangement which, because of its apparent lack of symmetry, does not seem at all typical of either the Thompson or Lillooet. Nor is it. This may be seen on the lower specimen on Plate 49, *a*. Here the color combination is accountable for the apparent gross breach of art etiquette in the association of what seems to be two series of black right-angled triangles which trend in opposite directions but face the same way. The design in reality is the series of superimposed isosceles triangles which are divided through the center into two sections of contrasting colors. The remaining background series of necessity are developed in opposite colors. This is the only specimen that has been noted which displays such incongruity, which, after all, is not faulty as far as arrangement goes, but merely in regard to coloring, since it emphasizes one-half of the design and one-half of the background, giving to them an apparent association which does not and should not exist.

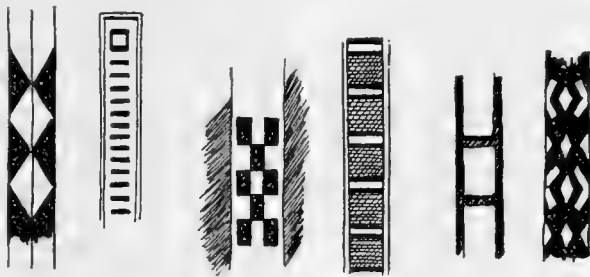


FIG. 45.—Designs on vertical stripes

Some unusual and elaborate subdivisions of the vertical stripe taken from photographs which were too poor to be reproduced as plates, are given in Figure 45, while the plates throughout the book give numerous other examples.

The diagonal stripe is very rare indeed, but seems to be coming into vogue on the newer baskets. Plates 27, *a*; 36, *h*; 41, *b*; 42, *b*, are illustrations. On trays it gives the impression of rotation (pl. 17, *h*).

DESIGN ELEMENTS

Before taking up the question of the treatment of designs and their adaptation to given fields in detail it is necessary to make a survey of the elements and their variations which are employed in their

creation. In order to enable the reader to appreciate fully the almost endless number of variations on a simple theme which are used by the Thompson in their decorative art, we have grouped the more than 800 forms which have been noted and copied by Mr. Teit, during many years of close association with the people, around the simple form elements from which they may be derived. (See pls. 78-94.) To a certain extent these groupings are necessarily arbitrary and patterns assigned to one group might just as well be associated with another, but in this attempt at an arrangement of designs from the most simple to the most complex, it must be understood that the order as given is merely one of convenience.

The art is almost wholly conventional. Dr. W. H. Holmes in his paper on "Textile Art in its Relation to Form and Ornament"⁴⁷ has discussed at length the decoration of basketry and its limitations. Due to these same limitations the art is almost wholly angular, near curves being seen only seldom and attained by series of stitches arranged in step formation.

There is a group of semirealistic forms, in which the objects are mostly represented by lines which can usually receive but one interpretation, and another of purely geometric forms in which the geometric figures may be interpreted in various ways as representations of objects. This latter type of art preponderates largely and will receive first consideration.

GEOMETRIC DESIGNS

Most of the simple geometric forms appear and are elaborated. These are the horizontal, oblique, and vertical lines, meanders, chevrons and zigzags, the triangle, square, rectangle, rhomboid, trapezoid, diamond, hexagon, and octagon. There are a few other figures which result from the truncation of some of these forms, and a number which are more complicated.

The creation of the horizontal line is practically determined by the technique of the basket. It is the result of beading or imbrication carried sufficiently far along one coil to produce a decorative effect.

Theoretically, vertical rows should not be particularly difficult to create, since they merely require for their construction a repetition of the technical process of beading or imbricating stitches in each coil directly over those so treated in previous rounds. Practically, however, with the Thompson, at least, this is quite a difficult achievement, for, while they split the stitch beneath on the side toward them when making the awl hole, they seldom divide it into equal portions, as is done by the Chilcotin. Because they drive the awl through the basket at right angles to it, they likewise furcate the stitch on the inner side. The splint lies across the coil in a more nearly vertical

⁴⁷ Sixth Ann. Rept. Bur. Ethn., pp. 187-252.

direction on the reverse side, while it slants downward to the right on the face of the coil, giving each stitch the appearance of leaning to the left. Even were the stitches exactly divided on the face a true vertical series could not be obtained on account of the leftward leaning of each stitch, although a perfectly straight edge could be produced. But when the furcation is uneven the second difficulty appears in the impossibility of making a straight line (fig. 46). This last the Thompson doubtless soon learned to overcome, although there are plenty of examples which show that many women did not recognize the cause of the trouble. The other more fundamental practice continues until the present day in nearly all Thompson work, although a few women have succeeded in bringing their splints over the face of the coil in an almost perfectly vertical direction, after the manner of the Chilcotin, thereby securing vertical lines. The majority of so-called vertical bands on Thompson baskets show a decidedly leftward trend which, however, must not be confused with the true diagonal, where each stitch in the series is placed at least the distance of one to the right or left of that similarly treated by imbrication or beading in the coil beneath.

It is quite likely that the same difficulty of obtaining perfectly vertical effects was encountered where purely beaded designs were used. There are few specimens, apparently, which show attempts to obtain vertical lines in beading, but it is probable that this was not the result of failure to produce the desired results, but merely that the people adopted the practice of beading alternate stitches in successive rows.

This would at once give rise to diagonal effects which would be more pronounced than the vertical. Slight inaccuracies in the width of the splint or in the placing of the stitch would also not be evident.

When once the stepped diagonal has become thoroughly established, by one means or another, an enormous development in decorative designs becomes possible. In any series of Thompson baskets appear zigzags in numerous varieties or some step figure, or the chevron or V, the last one being far more frequently built up from the apex than vice versa. The diagonal zigzag in both horizontal and vertical arrangements is one of the most common figures. There is also that composed of horizontal and approximately vertical lines which is seen on many old baskets, and frequently on rectangular shapes, where it starts at equal distances around the bottom, ascending spirally to the rim, crossing over corners or faces of the basket surface. Undoubtedly it is a survival of one way of decorating the old round forms. These two types of the zigzag, that composed of



FIG. 46.—Bifurcation of coil stitches

diagonal lines and that built of horizontal and vertical sections, are quite distinct and probably had entirely different histories. The meander is also derived from the combination of short vertical and horizontal sections, but because of its construction is confined to vertical and horizontal bands.

Checkerwork likewise, which undoubtedly contributed to the appreciation of the diagonal and which is inextricably associated with it, is naturally present in great abundance.

A rapid survey of the elements and designs, as well as closer study, gives the impression of a preponderance of diagonal forms, although vertical lines and arrangements as well as right angles are not lacking, particularly owing to the great popularity of the mouth or head design. Having touched upon the lines necessary in the construction of figures, and which are present in the art of this region, it will be seen that curved figures are conspicuous by their absence. The designs are entirely angular.

It now becomes necessary to discuss the elements used and their treatment and subdivision according to their sizes. The simple geometric forms before mentioned will be reviewed separately from this standpoint. The figures which result from the combination of these are not especially common and may be better comprehended by illustrations.

THE SQUARE

We begin the discussion with the square, since its form is presented immediately to the eye on the accomplishment of the first stitch in beading or imbrication. All beaded or imbricated designs are composed of series of squares or rectangles, made either of single or double coil stitches or larger combinations of these. Checkerwork is purposely omitted from this discussion. The smallest square is necessarily of one solid color—red, black, or white. It can not be subdivided, but squares which are produced by a number of stitches en masse, or by an outline which may include many stitches within its boundaries, may be subdivided in a number of ways. The extent or kind of subdivision depends on the size of the square.

In speaking of subdivision it must not be understood that the people consciously subdivide a large square, but the term is merely used in an objective sense. Of the many possible combinations or subdivisions in a square composed of four stitches where three colors are available, comparatively few are actually represented.

Before discussing the subdivided square it is necessary to state that occasionally the single stitch in any of the three colors is used as an element, or two stitches if one would be too narrow (pl. 41, *a*, *c*). But when the square of four stitches appears there are odd gaps in the series as actually found, compared to what is theoretically possible. The square composed of four stitches may be divided in various ways

by the employment of two contrasting colors. The vertical stripes on the basket in Plate 29, *c*, are decorated with these rare squares.

A nine-field but not necessarily nine-stitch square is fairly common on modern baskets; and has been seen on some rather well worn specimens. Usually it extends over three coils in height and is about six stitches wide. The nine fields are of alternating black and white, or red and white, so that the effect is that of a dark cross on a light background. Usually the central square is light. The related figure, without the four light corner squares which provide the so-called background, is frequently interpreted as the "star" or "little spot" design, and as such it appears either alone or in a series. Figure 47 shows this nine-field square.

The larger squares, totaling in all 25 units or more, are, on the whole, rare and usually found on new baskets. One Lillooet specimen displays large squares divided diagonally, covering three broad coils and extending for six stitches, but these are very rare. A very few Thompson specimens give the figure in black outline, with an unimbricated center or one filled in with white imbrication. Such figures cover about four coils, and from five to eight stitches usually, although larger ones have been noted on very new specimens (pl. 41, *g*). Another rare white square is delineated partially by a narrow black band along the sides, but not at bottom or top, while a still more peculiar variant has a line of black along the bottom and the right side (pl. 41, *h*). This type is closely related to triangular forms. In this case the artist goes out of her way to complete the square form; in partially outlined triangles she does not. Black solid squares about three coils high and seven stitches wide are more common, even on earlier baskets, and appear alone or in vertical, horizontal, or diagonal series (pl. 36, *a*). In the last-named arrangement their corners may or may not touch; in the first two they are either widely separated or appear in close formation with only narrow intervening stripes of white.

Banded squares are six stitches wide and extend over three coils. Others are ten stitches wide and extend over five coils (pl. 7, *a*), or six stitches wide and extend over four coils (pl. 26, *c*). Some are divided into vertical stripes, each one or two stitches wide. When there are three stripes, the center is white, the outer two are black. A horizontal arrangement of a similar nature on another basket gives rather the impression of three narrow separate bands than of a subdivided square,

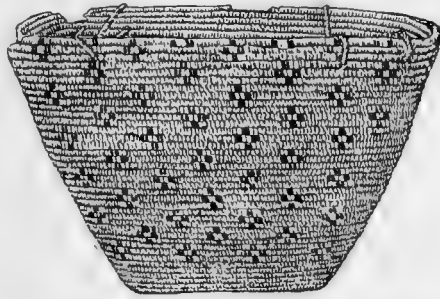


FIG. 47.—Basket with star design. U.S.N.M. 217438

although technically it may be so characterized. The banded arrangements are very common in squares of this size on old baskets.

Recent specimens present squares subdivided, as shown in Plates 41, *b, d, f*; 44, *b, i*. (See also the sketches on pl. 85, Nos. 348 et seq.)

The large square in outlines is used as an element by the Chilcotin. It seems to have enjoyed great popularity among them and is found in a variety of styles. The people not only bifurcate their stitches with remarkable accuracy but also on many baskets bring their splints over the face of the coil in an almost vertical direction, keeping the diagonal direction on the reverse side. Being thus able to place their stitches almost exactly over one another, the Chilcotin impart to their basket surfaces a vertical effect which is quite as pronounced as the diagonal ribbing on a piece of serge cloth (pls. 58-62).

It is impossible to say how much influence the technique has had on the art style developed, but it is certain that habit, whatever it may have been the initial cause, has led to two very different styles with the two peoples.

THE RECTANGLE

The large and small rectangles are more common than the squares as elements and seem to have been suggested very often by the horizontal direction of the construction of the basket. Small ones, only a coil in height and three or four stitches long, are often seen in all black or red, or when longer, in sections of different colors (pls. 21, *d*; 27, *b, c, d*). Tall rectangles (really placed on end) cover usually three coils and two stitches and are sometimes seen in the dark colors, but rarely in white. A common and fairly old vertical stripe arrangement is composed of a series of black and white tall rectangles (pl. 26, *f*). The first pair may be black to the left, white to the right. Joined to these and immediately above is another pair with color reversed, and so on (pls. 34, *d*; 56, *d*; 57, *d*). This idea does not seem to have been developed further.

The largest rectangles, extending over several coils, are usually about twice as long as they are wide and are generally horizontal. They are worked in black, red, or white, and appear singly or in vertical, horizontal, or diagonal series as well as in checker formation (pls. 24, *h* worked in a wide coil; 26, *a*). They are varied by subdivision into smaller vertical or horizontal rectangular fields. One was divided vertically into four sections, the two ends being black, the two centers white; others were composed of three, of which the center was white, the outer two black, or vice versa. When the division is into horizontal fields along the line of the coil, regular alternation of dark and light seems to be the rule (pl. 45, *l, m*). In the modern basket (pl. 52, *i*) white fields alternate with

black and red ones. In horizontal figures the failure to attain truly vertical lines is not disturbing, because they do not extend over more than two or three coils; but it is noticeable in tall and narrow figures. A number of rectangles may be seen in the plates illustrating the use of squares and triangles.

THE TRIANGLE

Not a single old basket and only very few modern specimens have the true triangle appearing alone as a single element, unconnected in any manner with other triangles or figures; but both isosceles and right-angled triangles in series are common on all specimens. Where the triangle is connected with others the figure is the result of diagonal divisions of a larger surface. A casual glance at hundreds of specimens would lead the student to suppose that the triangle was one of the most common single elements in Thompson art. By the term triangle a three-sided figure is meant, which by its treatment shows that it is a three-sided figure, not a space between converging lines. It is an independent form worked in solid color, or outlined on three sides, imbricated or plain within these boundaries. The presence of such figures would lead the student to suppose that the triangle as a separate art element was consciously recognized. Only on a few baskets of fairly late origin is anything conforming to these specifications discovered. Here one finds the simple very small triangle—of course with the step edge, not exceeding four coils in height—built up in solid colors as a separate element. Usually the direction of building is upward from a single stitch at the apex to four or five stitches at the “inverted base,” except where there is an opposed series. Here in one series the direction of building is to our eyes normal. The number of stitches along the base as compared to the height usually depends on whether the triangle is right-angled or isosceles.

The outlined triangle is also seen occasionally on modern examples but nearly always in a series. The only illustrations of the use of true triangles (that is, not interlocking) are given in Plates 25, *d*; 44, *c*, *h*, *i*, and 45, *h*, which are almost all that were found after a careful study of hundreds of photographed specimens comprising not only entire collections from all the large museums in this country but also those belonging to individuals. In some semirepresentative attempts the wings of butterflies and birds assume truly triangular forms. These are excepted from this statement. In one example the true triangle is used along the rim. It may be that the necessarily increased width of the horizontal outline of the triangle which must have the full width of the coil, as compared to that of the diagonal sides, which consist of one or two stitches, accounts for the frequent omission of this part of the figure in the case of outlines. Certainly when present

it gives a very heavy effect. The triangle shown in Plate 45, *h*, is interesting because its base is worked in alternate stitches of black and white in a single row, instead of being composed of two rows, one white and one black, as is the case along the sides. In some cases, when filling the space between the black lines with white, the artist merely emphasizes the space enclosed by the diverging lines. It is peculiar that on coiled baskets of all the tribes studied practically all old triangular decorations consist of a field set off by an angle and filled with plain imbrication, checkerwork, or with lines parallel to the outlines. The expedient of increasing the width of the diagonal lines to offset the necessarily wide horizontal line of the base has apparently not been resorted to.

In addition to the baskets shown in Plates 42, *e*, and 44, *d*, *e*, *f*, *i*, which are decorated with single isosceles and right-angled triangles, three or four other specimens (pls. 8, *c*; 13, *b*) show the presence of small isolated figures worked in solid color, but these are very few on which to base a theory of the construction of elaborate series of triangles in vertical and horizontal arrangement from the triangle as an element, or the conscious application of this as a figure in art, except in very recent times; yet, on account of the very number of superimposed, divided and complete triangles appearing in combination, it seems impossible that the people have not long recognized the triangular form. This is proved by the filling in of the space between the diverging lines of chevrons. Certainly the triangular figure is given an individual interpretation in the majority of cases.

There is little doubt that if an isolated triangle had been drawn in outline by a white man and shown to the Indians, the old people would have seen nothing new in it. The infrequent appearance of the figure as a separate element, and the universal appearance of the chevron in outline or filled in, as well as of innumerable triangles found in series separated by lines or contrasts in colors, merely suggests that the development of the form came through the channels of that of intersecting or opposed zigzags or filled-in chevrons. It also suggests that it was comparatively long in being recognized as a possible separate design and illustrates what a large part habit plays in the formation of an art style.

The subdivisions of true triangles are rare indeed, although frequently the figure is outlined once or twice in black, and the space between the lines is imbricated in white, or the outline may be in white while the center is black, as may be seen in the Wenatchi specimen shown in Plate 44, *c*. A triangle worked all in checker is practically the same in effect as a series of concentric chevrons with the spaces between worked in white. For the other treatments of triangular surfaces the reader is referred to Plates 78-94.

THE CHEVRON

The chevron (pl. 21, *b*) should be discussed before taking up the subject of the diamond and hexagon. Its presence is very significant and doubtless has been influential in the development of diagonal designs. It does not seem probable that the figure was derived from the vertical zigzag (pls. 33, *c*, *e*; 76) which is merely a diagonal line which changes the trend of its direction from right to left or vice versa at given intervals, although it is closely allied to it. The chevron starts with a single stitch from which others branch to right and left simultaneously. The fact that it is found so widely with several elaborations both on old and new baskets suggests that it is very old. It is nearly always interpreted as the flying bird design and as such is often elaborated (pls. 21, *a*; 24, *b*). In its inverted form, appearing singly or in opposition to others placed apex downward, it is much less commonly seen and is undoubtedly newer. Still more rarely is it turned on its side so that the apex lies to the right or left. It is a design which seems to be suited equally well to all shapes of baskets, especially when arranged in a vertical series.

On round flat shapes these series radiate from the center; on rectangular and cylindrical forms they ascend side by side from base to rim. The sides of the angles often overlap. The series of plates which illustrate squares, rectangles, and triangles, as well as Plates 7, *c*; 35, *d*; 37, *e*; 38, *c*, *d*, give some good ideas also of the forms and varieties of chevrons. They likewise indicate their popularity.

THE FALSE TRIANGLE

The term "false triangle" is not synonymous with chevron, for the latter implies diverging lines, the former a solid figure in which, however, the idea of divergence is prominent, as in the emphasizing of the angle rather than the inclosed triangle which requires a continuation of the outline across the base. These false triangles are illustrated on Plates 44, *d*, *f*; 45, *c*; 46, *a*.

THE DIAMOND

The diamond is an old figure in Thompson art, for it is found on many well-worn and even ancient baskets, as well as on modern specimens. It occurs frequently as a separate element (pls. 37, *c*; 76), either outlined in a dark color or as a solid or checkered figure (pl. 17, *c*, *f*). It is often subdivided by diamonds of contrasting colors arranged within it in concentric order. Plate 38, *d*, shows a diamond outlined in three rows, black, white, and black, and combined with chevrons to form a design. There are black diamonds outlined in white and black (pl. 49, *c*) and black and white ones outlined in black (pls. 17, *b*; 25, *b*), as well as others consisting of bare or imbricated surfaces

with black outlines (pls. 21, *c*; 22, *d*; 31, *a*; 38, *a*; 40, *d*; 49, *e*; 54, *d*). A diamond, to be recognized as such, must cover at least five coils, since the size of the stitch and the width of the coil count very materially in reducing the effect of a short diagonal produced by the necessary "steps." The three-coil diamond would be exactly like the star design discussed in connection with squares. A five-coil diamond would not be obviously more clean-cut (pl. 42, *h*). Average sizes are seven to nine coils in height, although there are many which are larger than these. Diamonds are frequently imbricated in solid colors with one of the above-mentioned "star" designs of a contrasting color placed in the center and with or without an outline of the same shade around the whole figure (pls. 28, *b*; 46, *d*). As a single figure the division of the diamond is usually concentric (pl. 38, *d*). In series there is sometimes a vertical or horizontal subdivision through the axes, but both do not often appear together, nor have diagonal subdivisions or banded effects been noted (pl. 14, *d*). The long axis almost invariably lies in a vertical direction, although there is one exception, to be seen in sketch 562, Plate 89.

HEXAGON, OCTAGON, CROSSES AND STARS

The hexagon and octagon occur in outline, concentric and single (pls. 5, *a*; 38, *a*, *b*; 49, *a*), but not in solid or checker formation, and both are usually found in connection with diamonds, although they are sometimes seen alone. They are rarely regular but are more often elongated vertically or horizontally, corresponding to the arrangement on the basket. This feature, together with their frequent appearance with the diamond, makes it seem possible that they have been derived from it through truncation, particularly as they are found encircling diamonds more often than not. Stars and crosses are also used as single design elements. (Pls. 25, *a*; 51, *g*; 52, *a*, *b*.)

TLEĒ'KA DESIGNS

The Indians divide all designs into two classes as real designs (that is, evidently geometric, highly conventionalized figures) or representations of objects (tleĒ'ka) and therefore not to their minds real designs.

The tleĒ'ka are as nearly realistic representations as basketry technique permits and include animal and human figures, plants, insects, birds, and objects, such as bows and arrows, moss cakes, tipis, etc. Because these figures are, as it were, unmodified, being pictures which are seldom made twice alike, they are recognized as being different from the others. Each woman exercises her own fancy in regard to them and is not obliged to follow any definite rule in their composition but merely strives to represent as well as possible the object of her choosing.

As a rule tleĒ'ka patterns do not appear with geometric designs, except when they act as fillers in what would otherwise be large blank

spaces not covered by the real designs. Usually they consist of rather large single representations which occupy the side of a basket. (Pls. 21, *c*; 22, *b*; 23, *a*; 24, *f*; 44, *a*, *g*; 45, *a*, *b*, *d-g*, *i-k*; 46, *e*, *g*, *h*; 47, *e*; 52, *a*, *b*; 76.)

Apart from the general conception of *tlēē'ka* designs, there is among some informants a slightly different idea as to what characterizes them. If a realistic representation of a deer, for instance, appears once as a fairly large single figure, it is called *tlēē'ka*, but if this figure is small and repeated many times in some regular order, a real design is the result, and it is named "deer pattern." The regular deer design may be seen in Sketches 790 and 791. There is no reason why one woman may not execute either type of design; she usually makes the one which she knows best. Those not knowing how to reproduce a real deer pattern (that is, with a tribally prescribed arrangement) may attempt it, in reality producing *tlēē'ka* patterns to which they give the name "real deer design," but this, according to authorities in the tribe, is wrong. They say that any pattern not conforming to the rules of arrangement is *tlēē'ka*. Under these conditions Sketches 804-806 showing the eagle are *tlēē'ka*, as are Sketches 746 and 798-800 (pls. 92, 93), which depict the butterfly, no matter whether they are large or small or whether or not they are used as fillers.

Other informants differ on this point. To them the best, that is most realistic, representations of birds and animals, etc., are given the highest standing, or are called real designs and designated by the names of the creatures or objects pictured. According to these individuals, those patterns which are less detailed and are arranged in groups are considered more or less conventional, having been altered to suit the conditions. With these people, all forms, including the realistic, are called true designs or parts or variations of them, while the *tlēē'ka* are those which have not yet been generally recognized or adopted, being new or as yet untried in arrangement or not reduced to conventional form for convenient basketry decoration. The following sketches are termed by some people *tlēē'ka*, not real designs: 430, 740, 838, 844, 848, and 859 (pls. 88-94).

Others include in this class most of the flower and leaf designs shown in Sketches 219, 539, 546, 642-644, 658, 659, 665-667, 733, 741, 742, 792, 793, 828, 842, 843, as well as panther, salmon, otter, beetle, and other rare realistic figures which are seldom reduced to any standard arrangement.

There are people who place in the *tlēē'ka* class all patterns, even though they are really geometric, which have been copied from white sources, or invented by women, which have not yet been applied in regular basketry arrangement but merely in single figures or on small baskets. Such are the designs appearing in Sketches

328, 333, 339-341, most of those from 608-614, some of the hammer figures like 808, as well as 394, 416-418, 515, 604, 605, 641, 656, 657, 660, 661, and 675.

Generally these patterns become real designs as soon as they are reduced to a specified arrangement, or one that becomes commonly adopted. Some of these may be similar to those shown in Plate 46, *e, g*.

Mr. Teit describes a typical tleē'ka basket thus (pls. 22, *b*; 76):

One side pictures a buck deer, another a bow and arrow, a third a man, and the fourth a moon. This is one of a small group of baskets with designs that illustrate a continuous story. As arranged in this order, the Indians give the patterns the following explanation: "It was moonlight. A man was hunting in the moonlight and saw a buck deer running away and shot it with a bow and arrow in the back." Some of the interpreters feel sure that the maker had this idea in mind when she made the basket. Such instances are exceedingly rare. * * * Another tleē'ka basket is nut-shaped and bears quite unrelated designs. On it there are three large patterns about equally spaced—a snowshoe, a beetle (nkokaum), and an eight-pointed arrowhead star with a square center.

It will be seen that the Indians' classification of designs into those which are tleē'ka and not tleē'ka corresponds roughly to our own which takes into account the realistic designs and the purely geometric. In addition, their undecided and vague conception in regard to patterns which may once have been tleē'ka but are now in process of change toward conventionalization and therefore toward increased geometricity, as indicated by their conflicting classification, matches our own rather ill-defined term "conventional."

There are a vast number of patterns which may be described as being on the borderland between realistic and geometric. Their classification is difficult, owing to the fact that even realistic designs on basketry are necessarily more or less conventional. The only criterion to be employed in doubtful cases is the judgment of the student and the name applied to the pattern. Where more than one name is given the design is considered as in the borderland class. Only those which are obviously pictures belong to the realistic group.

From what has already been said in regard to design elements and their arrangement in fields, to the use of lines and their relation to geometric figures which are often merely a chance result of their intersection or combination, not ends in themselves, and from the recognition by the Indian of the reverse patterns on vertical stripes it seems that it is quite unwarranted by the facts to suppose that all these geometric combinations, so simply derived from playing with the technique, ever originated in an attempt to depict natural or artificial objects; in other words, had their inception in realistic art. This viewpoint is strengthened by the fact that to most of the simple geometric figures so many different and utterly unrelated interpretations are given that it is quite evident that the process of reading in meanings has been carried very far. While the resem-

blances are in many instances so striking as to suggest themselves to anyone, in others they are so remote as to be recognized only after the interpretation has been given. The element so charged with representative significance is certainly far older than most of its connotations and certainly the supposition of its technical origin as a geometric figure is as capable of acceptance as that of its first introduction as a delineatory attempt which, by the conventionalization of form through stereotyped arrangement and repetition, has been reduced to the most unrecognizable and "geometrified" shapes.

To return to the undeniably strong tendency of delineatory art which is used for decorative purposes to pass into conventional and then geometric form, which may be due to any of a number of causes, such as difficulty of execution in rigid technique, stereotyped and frequent repetition, increasing freedom in execution resulting often in omission of details not essential for the effect desired, and speed, which is most easily gained by curtailment of all but necessary details, it is not surprising that conventionalization might seem to be the fate of all representation utilized for decorative effect. There are several interesting instances of this process in a collection of sketches of imbricated birds and insects made by Mr. Teit. The eagle is shown in Sketches 804-806 in a surprisingly accurate fashion illustrating how much can be done, even in basketry, by painstaking care, attention to details, and a great expenditure of time and labor. Less perfect forms are shown in Sketches 706, 710, 716, and 717. In Sketch 707 the form is so far reduced that the head is missing. In Sketch 711 the tail has disappeared, and in Sketches 712 and 718 both are wanting. In Sketch 713 the shape of the wings is retained but there is no division indicating that there are two, while in Sketch 708 the form is a mere rectangle. All of these figures are interpreted as eagles and all are still being made.

The beaded "butterfly" designs shown in Figure 43, *a* (p. 236), were so named by a number of women, among whom were two from Lytton and two from the Upper Utā'mqt, who called *b* and *c* by the same term. They said that these patterns, including *d*, *e*, *f*, *g*, and *h*, were not "Indian rice"⁴⁸ designs, nor halves or fragments of them, nor were they "fly"⁴⁹ patterns. They agreed that they might be called "spot" or "bead" designs because of their checked elements, but that their real name was "butterfly," a name used also by the mothers and grandmothers of the women interviewed. People who designated them by any other term did so because they did not know any better. They are all old common figures and were used in embroidery on clothing as well as on baskets. There were many variations of the design, all called butterfly, of which only a few are shown in the figure.

⁴⁸ See p. 466, under "mula."

⁴⁹ See p. 465.

The same women designated Figure 43, *i* (p. 236), as a butterfly, saying that the cross was the head. They declared that all checker-work designs with crosses were really "butterfly" figures.

On the other hand, the series of sketches of imbricated butterflies corresponds to that of the eagle just given. Sketches 798-800 show beautiful realistic figures. Sketches 801 to 803 are much reduced. Finally in Sketches 704 and 705 only the wings are seen, while in Sketches 136, 151, and 305 there are mere triangles capable of various arrangements, only some of which are known as butterflies.

In discussing designs there must be no confusion between the elements composing them and the designs proper.

Tleē'ka designs may serve as design elements. In rare cases, as on the two baskets described by Mr. Teit, they may tell a story. There the several figures of persons and objects occurring in the tale might for the sake of argument be considered as elements of the whole design.

In geometric art, all designs, practically, consist of a combination of simple geometric elements. Only rarely do these figures forsake their true sphere as elements and rise to the status of designs. These are the infrequent cases of the use of large single figures, such as the diamond, real and false triangles, the chevron, etc.

At least one band of the Thompson, namely, the Utā'mqt, are much inclined to regard certain of their patterns as half designs or parts of patterns which are considered as complete designs by the Upper Thompson and are called by different names.

Thus the "bent" or "broken back" figure **L**, especially when in an inverted position **Γ**, is called a part of the ladder or step design. Indeed, some people consider the two as having the same origin. Diamonds, particularly if arranged in horizontal rows, and also chevrons are thought to be parts of an all-over design known as "mesh" or "net." Many checker patterns which are not diamond in general shape are called half or part of the "Indian rice" pattern, and all figures which are mere symbols are considered as parts of full designs.

The index to the sketches includes a number of interpretations of these fragments (pp. 473 et seq.).

APPLICATION OF THE DESIGN TO THE FIELD

In the application of the design to the trapezoidal field of the burden basket the Indian woman encounters many technical as well as artistic difficulties. Although she may possess a clear idea of the design she intends to place on her basket before she more than finishes the bottom, it frequently happens that she is prevented from accomplishing what she proposes to do by the complications arising from the many points which require attention at the same time. The general form and structure of the basket, working the

coil splints up into a perfect round bundle, adding new splints, preventing lumps or depressions, keeping coils uniform both as regards size and tightness of sewing, attending to the proper dampening of material, the imbrication—which with some women means lessening also the thickness of the coil sufficiently to keep the imbricated surface even with the plain sections—the selection of colors, spacing and treatment of designs, with enlargement or diminution according to the changing size of the field, all are to be considered at the same time. It would not be surprising if something were temporarily overlooked and mistakes occurred which were observed only when it was too late to remedy them. In fact, it is amazing that the general character of the entire product is so perfect, the stitches so even, the coils so uniform, the colors so well blended, and the designs so well adapted and spaced.

It will be seen from Figure 36 (p. 217) that roughly trapezoidal fields are formed on all sides, within which the designs selected must be arranged. Owing to the technique of sewing and imbrication, two stitches never are placed exactly over each other in succeeding rows, but run to the left, more or less markedly, according to the amount of care exercised by the maker. Thus all designs which under ideal conditions would present vertical lines lean to the left, and in the upper right-hand corner of the field a space results which is actually much larger than it should be if the design could be properly constructed. The people evidently feel the need for filling in this space, thus helping to obscure an otherwise obvious fault in the technique and therefore add sections of design to occupy this left-over triangular field. This treatment of corners furnishes material for a most interesting and instructive study of the inventive faculties, resourcefulness, and artistic taste of these Indians. To our eyes, long accustomed to symmetry, or balance, these "left-overs" frequently present an annoying spectacle.

Considering the inconvenience to successful ornamentation occasioned by such forms as the burden baskets have assumed, in which pronounced corners have created new difficulties, it would seem that round forms, the surface of which presents an easily treated and unbroken field, would have remained in favor. A stiff, round burden basket is inconvenient, however, because it rolls back and forth while being carried. Flat sides lend greater stability to the load which is carried on the backs of men or on the sides of horses. It seems that the practical improvement secured by the alteration of shape has outweighed all artistic considerations and has determined the development of the form.

Of those who plan their work (and they are in the majority), a few sketch the design first on paper. Some who, when not engaged in basket making, see designs which please them, sketch them at once

in a rough fashion and carry them home for future reference, if they think they are unlikely to have an opportunity to reexamine the original. Long ago, before the whites came, such sketches were made on birch bark with bits of charcoal. Baskets which are traded from one place to another and arouse a woman's admiration are sometimes taken as models if she has decided to attempt an entirely new design instead of adapting an old and tried figure. If she chooses the latter alternative she generally knows beforehand just how she will alter the pattern. It is quite usual for a woman to remark, "I will make 'such and such' a pattern this time," naming a well-known design, much as our grandmothers in weaving woolen coverlets or patching quilts might have said, "I shall try the log-cabin pattern on this one"; but such a decision does not prevent the basket maker from changing her mind, especially if, on account of technical difficulties, the pattern does not fit as well as expected. As a rule, however, difficulties are anticipated and allowance is made for them, so that very little change in the original plan is necessary. There are undoubtedly some standards of taste to which all the basket makers adhere as closely as they can, but naturally considerable variation occurs in the abilities of the different women, such as would occur among ourselves, and each woman is likewise free to exercise her own ingenuity in working out the adaptation of her design to its field. Considerable effort is made to produce as much symmetry as possible on the trapezoidal field. Practically everyone pays some attention to these points, but an artistically successful result depends very largely on the designs selected for the type of basket. With some women far more attention is given to the design itself, its symmetry, and execution, than to its suitable position in the field.

Although the number of coils to be covered by a pattern is not usually calculated, the relative size of the figure as compared with that of the entire field serves as the guide. The coils are only counted when there is to be a second tier of designs above the first, composed of the same figures, unless these are enlarged to correspond with the increased size of the field.

As far as the stitches are concerned, counting them would not assist in obtaining exact duplication of patterns on account of the constant, almost imperceptible variation in the width of the sewing splint, which amounts to very little spatial difference in the course of a few stitches but which becomes very noticeable in a large design. Usually more care is exercised to make the stitches even where they are covered by imbrication than where they are not, especially if more than one stitch is covered by the same fold, as happens at times when the stitches are small, since there are greater chances of noticeable variation in the combination of two stitches than in single ones.

No matter how carefully the artist may perform her task, certain conflicts are bound to arise between any design arrangement she may select and the peculiar form of the burden basket which she seeks to beautify. Thus she is constantly prevented from accomplishing with success that which she attempts to do. We see that the creative instinct, at least along the lines which tradition has laid down, is curbed in many ways by conditions which could only be removed by radical changes in the shape of the basket.

So we find here a group of artists struggling, for the most part, to ornament a peculiarly difficult shape with designs which are in many instances not capable of perfect adjustment. Even in the case of the more easily handled patterns, however, there are problems the successful solution of which would tax to the utmost the patience and ingenuity of the majority of white women.

Among the general obstacles in the way of successful treatment, from which no woman can escape, however true may be her eye, however painstaking her work, however extraordinary her artistic sense, is the leaning stitch, a difficulty which is unsolvable except by a complete change of sewing methods, something not likely to occur in a tribe which has sewed in this manner for generations. The leaning stitches necessarily affect more or less all lines intended to be truly vertical. Secondly, there is the constantly varying width of the sewing splints which, minute as it is, affects the size of the imbricated block to no slight degree when a number of stitches are taken en masse. This difficulty could never be adjusted without a machine gauge for preparing the splints, since human handiwork almost never attains to mechanical accuracy. Lastly, there is the structure and form of the basket itself which includes several problems. The coarse coils and stitches do not admit of direct diagonals, but necessitate "steps." Neither is it possible, or at least practicable, to make smaller adjustments than the size of coil and stitch admits, although in one rare instance we may see how the square block of a bird's beak was shaved down by narrowing the ribbon in successive stitches (pl. 47, *e*). On account of the square stitches curved designs are eliminated altogether.

The spiral coil necessitates a "jump" at some point on the basket wall at each round and therefore at that point two adjacent figures lying either side of it although otherwise alike are bound to differ in their relative position on the basket by the distance of one coil. The form of the basket with its constantly increasing wall circumference in the direction of the rim and the oblique corners offer the last two and probably most baffling of all the problems with which the artist must wrestle.

With all these difficulties to be kept in mind, we will attempt to discuss the remarkable ingenuity of the weavers. At the same time

we will also call attention to the irregularities in their work which are instructive because they show how attempts have been made to solve the arising difficulties.

The imperfections will be taken up first in a general way, from the standpoint of the adjustment of the designs to the field, and coincident with this, as occasion demands, the attention of the reader will be called to any minor points that may present themselves. The relation of designs to each other, as regards spacing or incongruity, will also be touched upon, as well as the adjustment of figures made necessary by wrong calculations. Next occurs the question of subdividing the surfaces of imbricated areas, such as the vertical stripe, and the lesser mistakes that result from the varying width of stitches or from distracted attention, wrong calculation, or inherent inability on the part of the worker to keep in mind changes of rhythm. It will also be interesting to discuss some specimens technically and artistically almost perfect. Some problems arising from the decoration of lids, when the designs are carried over from the walls of the basket and converge there, together with the related question of designs on oval trays, are also important.

We shall first discuss the various types of designs in use by the tribe as burden basket decorations. We must recall the several distinct styles of distribution which have already been treated, namely, the horizontal, diagonal, vertical (including the vertical stripe), all-over, and large single patterns. It has been observed that the Thompson have tried and still use all of these in the application of their designs to baskets, so that they offer a more varied and interesting study than the similar specimens manufactured by the surrounding tribes. In the application of large single designs, one to a field, which is perhaps the easiest type of decoration and strangely enough one of the rare ones, the first problem is to center it, which is generally accomplished by eye, but sometimes aided by means of rough measurements. These designs must be, in most cases, symmetrical, and slight inaccuracies such as arise from the varying width of stitches are usually not very obvious. Plate 46, *c*, shows a basket, which, while having more than one figure to a face, at least has only one on each level, and each of these designs centering on the same principle as a single large design. It is interesting to note how the upper figures have been increased in size the better to fill the larger field. (See also pls. 28, *f*, *g*; 29; 31, *e*; 46, *c*; 51, *h*.)

One of the simpler distributions is the horizontal banded arrangement which runs completely around the basket (pls. 8, *d*; 9, *a*; 21, *d*; 27, *c*, *d*, *f*; 36, *c*; 41, *i*; 54, *b*). Here, at least, with plain continuous lines, there is not the difficulty of spacing isolated designs or vertical stripes and providing for fillers, etc., or of doing what seems to us so

obvious and easy, dividing the circumference of the bottom into a given number of sections for ends and sides, at which points stripes or figures are to be started. It will be remembered that the horizontal beaded lines were the common type of decoration on old baskets (Lillooet, pls. 18, *c*; 55, *g*). But these have long since given way to more complicated horizontal bands which in their complexity rival the vertical stripes.

Practically all the types of decoration used in this area present some undesirable difficulties in the way of their successful execution. The diagonal all-over arrangements of small figures are perhaps the only exceptions, since a little more latitude in selection of stitches may be assumed without very noticeable bad effects and the very number of the figures conceals the errors more successfully. Yet diagonal patterns of this type are used on far less than half of the baskets and on the other hand a large percentage of the patterns on more recent baskets consist of vertical stripes or vertical series.

The women are well acquainted with the difficulties of their work. The specimens illustrate many devices intended to overcome faults, but the basket makers have not worked out any well-defined and generally accepted system for disposing of difficulties, except that of the use of the fillers for bare corners. Even here a great amount of latitude prevails, so that while fillers are sanctioned there is almost no common feature which characterizes them. For some reason the circumference spacing in the placing of designs seems a particularly difficult problem for the Thompson women. Of course there are individuals who accomplish it very easily but most of them seem to have their greatest trouble here, which is due not entirely, however, to incorrect divisions in the beginning, but rather to the premature turning of the coil at the corner, which becomes more accentuated as the basket is built up and which makes the trapezoidal field askew, and not at all conforming to the shape of the bottom. All divisions of the circumference are made by eye or only very roughly with a splint, and slight inaccuracies at the bottom of the wall become more apparent as the work proceeds.

THE HORIZONTAL BAND

The horizontal band is more easily handled, although, if it consists of a row of smaller figures, there is always the problem of spacing them and avoiding a too small or too large unit where the circle is completed, as well as of affording a satisfactory solution of the jump. If the horizontal band is wide, difficulties arise on account of the greater circumference of the upper edge, as compared with that of the lower. This incompatibility of upper and lower edges must often be dealt with entirely in the region of the corners of the basket because a

gradual adjustment of figures along the sides and ends can not always be made. The two paramount difficulties of the continuous horizontal band are the rounding of the corner and the treatment of the jump, although in successive horizontal rows, each with its distinctive type of figure, a third problem of keeping these properly aligned presents itself.

In a design such as that shown in Plate 46, *d*, some women would certainly try to have the points of the central row of "stars" or diamonds touch the centers of the triangles above and below, but

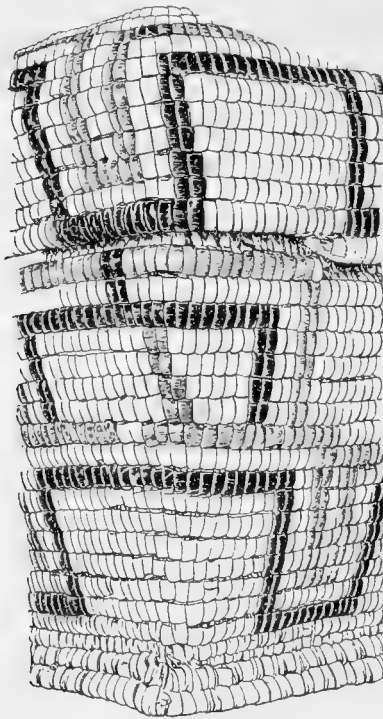


FIG. 48.—Corner of basket. A.M.N.H.
16-4645

this is practically an impossible feat, if the latter are to be kept all of a size, owing to the increasing length of the field. To render such a plan feasible it would be necessary to enlarge or spread out the triangles in the upper series, and this would throw them out of proportion with the lower series. The woman who made the basket probably knew from experience that an exact symmetry and balance could not be maintained between the different "layers" of designs, and therefore gave her chief attention to properly spacing the "stars," letting the triangles take care of themselves.

While a few women constantly attempt to bring about harmony between different bands bearing unrelated designs, most of them have probably observed that at least they themselves have no success, and therefore treat each sec-

tion independently, especially if there is no very obvious relation between the designs in each.

In a three-banded arrangement, where the upper and lower bands are alike, frequently the designs in the upper can be placed exactly over those in the lowest band, with room at either end near the corners for an additional element. This is a very satisfactory method, especially if the elements are "stars," crosses, or diamonds. But where meanders or mouth designs encircle the basket or are applied all-over fashion, as in Figures 48 and 49 and Plate 11, *b*, the problem is complicated greatly because the notches are continuous, not spaced, and the slightest miscalculation in the first row at the bottom in such a

design creates untold difficulties in subsequent layers; that is, if any attention is paid to their relation to each other, even if the basket is without corners. Figure 49 shows the arrangement secured by one artist, the result of whose efforts can not but challenge admiration.

The late Dr. Hermann K. Haeblerlin, who made a special study of these technical problems and their solutions by the women, collected a number of specimens in which various points were illustrated, and made some sketches of them. Disregarding for the moment baskets with corners, it is instructive to discuss the very interesting specimen shown in Figure 50. The decoration consists of six horizontal bands of imbrication, each of which covers three coils. In the first two the alternation of colors is regularly white, red, and black. The bands are connected at regular intervals by vertical stripes which, although only one stitch wide, mark the surface into sections. In the first two tiers these stripes appear after every second block, and those of the second tier are halfway between those of the first. In the third and fourth tiers the stripes still come after every second block, but the regular arrangement of the blocks has been dropped and they have been made longer in an effort to accommodate them to those of the tiers below, a task which becomes increasingly difficult as the basket circumference becomes greater. Finally in the fifth and sixth tiers the stripes and blocks show no coordination. This basket tells a story as plainly as words of a woman who had a definite idea of decoration which she

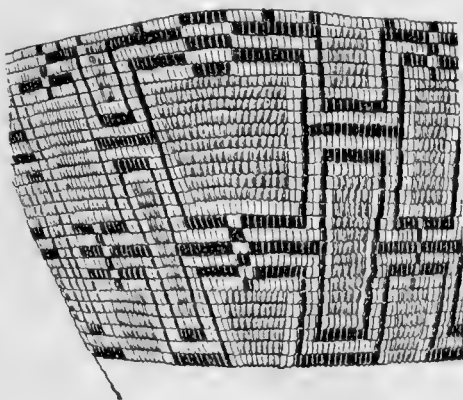


FIG. 49.—Corner of basket. U.S.N.M. 217453

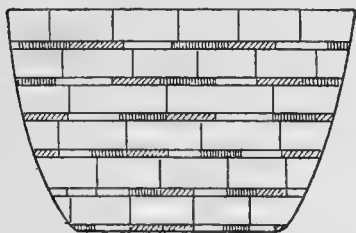


FIG 50.—Banded decoration on basket.
Peabody Museum, 62239

was obliged to abandon because of the impossibility of harmonizing the design with the shape of the basket, although the fact that she sought to do so is evident in the middle zone of the basket.

Figures 51 and 52 are sketches of baskets decorated with designs in such a manner that the corners are almost ignored. Were these baskets round instead of rectangular the style of decoration could not be improved upon.

As it is, in Figure 51 the artist could not have selected a much worse design than the "leg" pattern for this particular trapezoidal field, especially since the figures all face in the same direction. This is technically a very carefully constructed basket. Sketch *a* shows how well the figures were started and adjusted in the given space. The pattern is perfectly placed. On account of the nature of the design, however, the upper portions of these figures must in some cases pass around the corners, and, since each figure is so large, this detracts from the symmetrical appearance of each face. If the artist sought to avoid the use of fillers, her selection was excellent and the

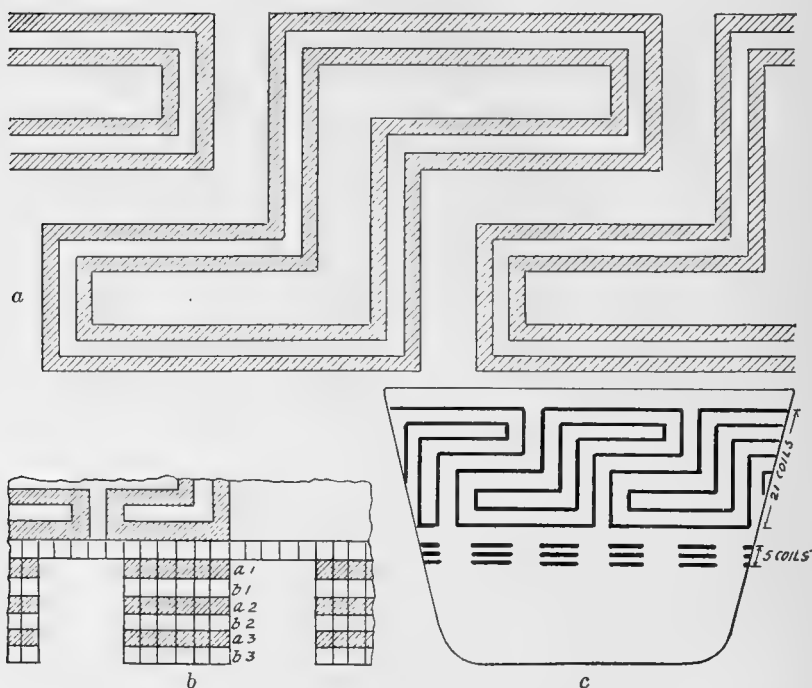


FIG. 51.—Adjustment of meander to sides of basket. U.S.N.M. 217434

handling of the design at the corners is admirable. Technically the pattern has its merits, especially in connection with this type of basket, since it admits of such comparatively easy methods of maintaining equal spaces, on account of the number of lines involved, but artistically it seems rather unsatisfactory. The series of short horizontal lines placed beneath the main band of decoration show no particular effort on the part of the artist to correlate them with the design above, a fact which adds to the artistic confusion (see Sketches *b* and *c*). In accuracy of workmanship nothing better could be desired. Sketch *b* proves this. Doctor Haeblerlin's notes say that each square represents one coil and one stitch. All of the figures extend over 21 coils, with one coil or one stitch of white intervening between all

black lines. The distances between the figures are always three white coils or stitches and the height of the horizontal arms nine coils. On the other hand, the series of horizontal lines beneath are very irregular. The length of the lines varies from 6 to 11 stitches and the distances between the series are also not constant, the average being five nonimbricated coil stitches. The remarkable feature about this basket and that pictured in Figure 52 is that the distances between the figures are always exactly the same for the entire circumference of the basket. In the meanders of the basket sketched in Figure 52 the length of the figures is not fixed, and indeed in Figure 51 the upper portion of the leg figure, which reaches around the corner, is somewhat longer in places than the corresponding section at the

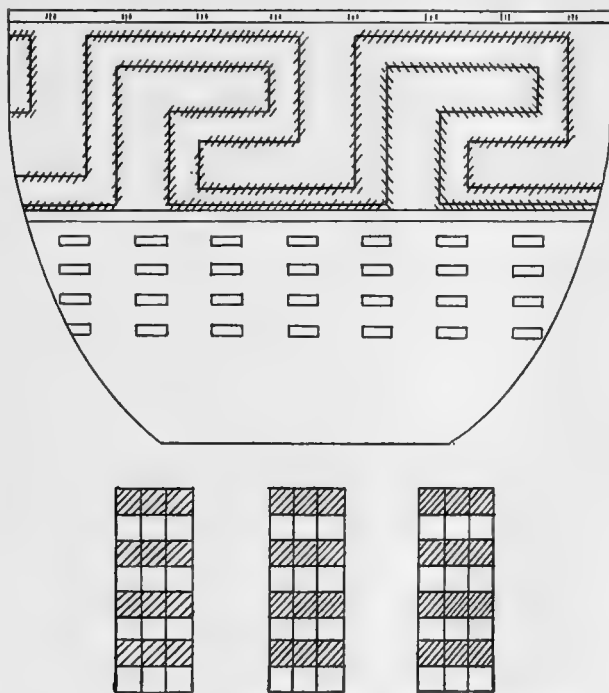


FIG. 52.—Adjustment of meander to sides of basket. U.S.N.M. 217447

base of the same figure. Nevertheless, the variations are very slight and show extremely accurate spacing of the designs when they were first begun. Starting at the jump on the basket shown in Figure 52, the lengths of the meanders are as follows:

First meander	15 stitches	8 cm.
Second meander	15 stitches	8 cm.
Third meander	17 stitches	8 cm.
Fourth meander	16 stitches	8 cm.
Fifth meander	16 stitches	8 cm.
Sixth meander	17 stitches	8½ cm.
Seventh meander	16 stitches	8½ cm.
Eighth meander	16 stitches	7½ cm.
Ninth meander	13 stitches	6½ cm.

Like the basket sketched in Figure 51, the block pattern beneath the meander is quite independent of it, as is the border. The latter consists of two or three dark stitches alternating with three to six white ones in irregular succession.

In many specimens the treatment of the corner has given more trouble than in those cases just discussed, even though the design distribution has been in horizontal bands (pl. 37, *f*).

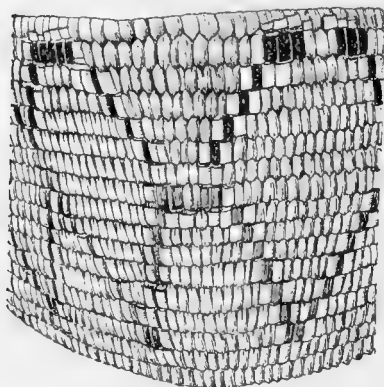


FIG. 53.—Corner of basket

Figure 53 shows an excellent adjustment, which although not quite perfect is certainly very well done. Note the increased size of the flattened apex of the diamond to the right as compared with that on the left, and that it is a little farther away from the corner.

Figure 54 shows how the position of the apex of a zigzag was altered.

The outline has been changed so that the point is shifted from the place where it theoretically belongs to the corner. (See also pls. 18, *d*; 24, *a, c, d*; 28, *b, d*; 77.) Plate 46, *b*, and Figure 55 (both the same basket); also Plate 55, *b*, show the clever avoidance of trouble by the length-

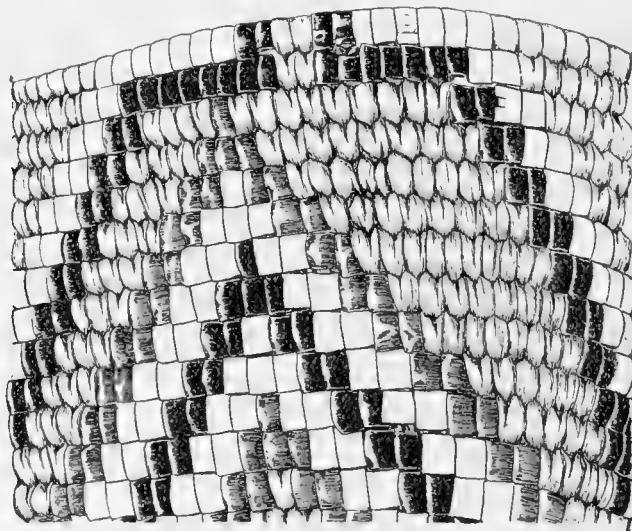


FIG. 54.—Corner of basket

ened connecting line between the zigzags at the corner. Figure 55 also shows the extremely successful concealment of the jump, which in this design is scarcely noticeable. On the left face the apex of each diagonal is one coil higher than those which correspond on the right face.

Figure 56 is taken from a basket whose maker was far too ingenious to wrestle with corner problems. That she could have done so better, perhaps, than most of her fellow workers is demonstrated by her remarkably well placed designs and even work. Undoubtedly she preferred a vertical alignment for the loose ends of the superposed zigzags rather than the compromises which might have been necessary at the corners. Doctor Haeberlin remarks concerning it as follows:

This basket and its ornamentation are most beautifully made. The regularity shown by the exact measurements proves that in a basket of this kind the surface as such is ornamented and that great pains have been devoted to the task of dividing the surface correctly.

Sketch *a*, Figure 56, is a reproduction of a section of the pattern, showing the careful nature of the work.

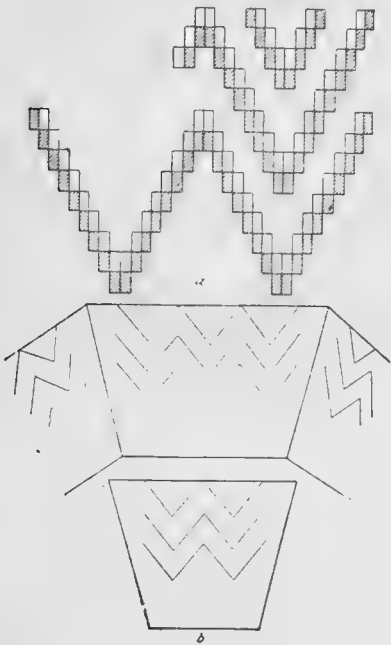


FIG. 56.—Adjustment of zigzag pattern to sides of basket. U.S.N.M. 216416

As seen in the drawings, the triangles of *D* fit into those of band *E*. Due to the curvature of the basket the spaces between the bases of the triangles (marked *A*) can not be so regular as those of band *E*. The number of stitches at the *A*'s in band *D* are as follows (beginning at the break): 3, 5, 5, 4, 8 (corner), 5, 5, 8 (corner), 4, 3, 3, 5, 6 (corner), 3, 3, 4 (break, at corner).



FIG. 55.—Corner of basket. U.S.N.M. 217467

The treatment of the jump in a basket with horizontal banded decoration is illustrated in Figure 57; *a* gives the general scheme of decoration. Sketch *b* is an enlarged section of the lowest band *E* in sketch *a*, at that part of the basket where the jump occurs. Of this Doctor Haeberlin says:

This first band is quite regular in the numbers of stitches composing the pyramids. The junction (*A*) always consists of four stitches except at the break (jump), and after the second pyramid from the last. Here *A* consists only of two stitches. At the break the difficulties are solved as presented in the drawing.

The second band from the bottom is presented in sketch *c*. This band has been lettered *D* in sketch *a*. It again shows the break. Doctor Haeberlin says:

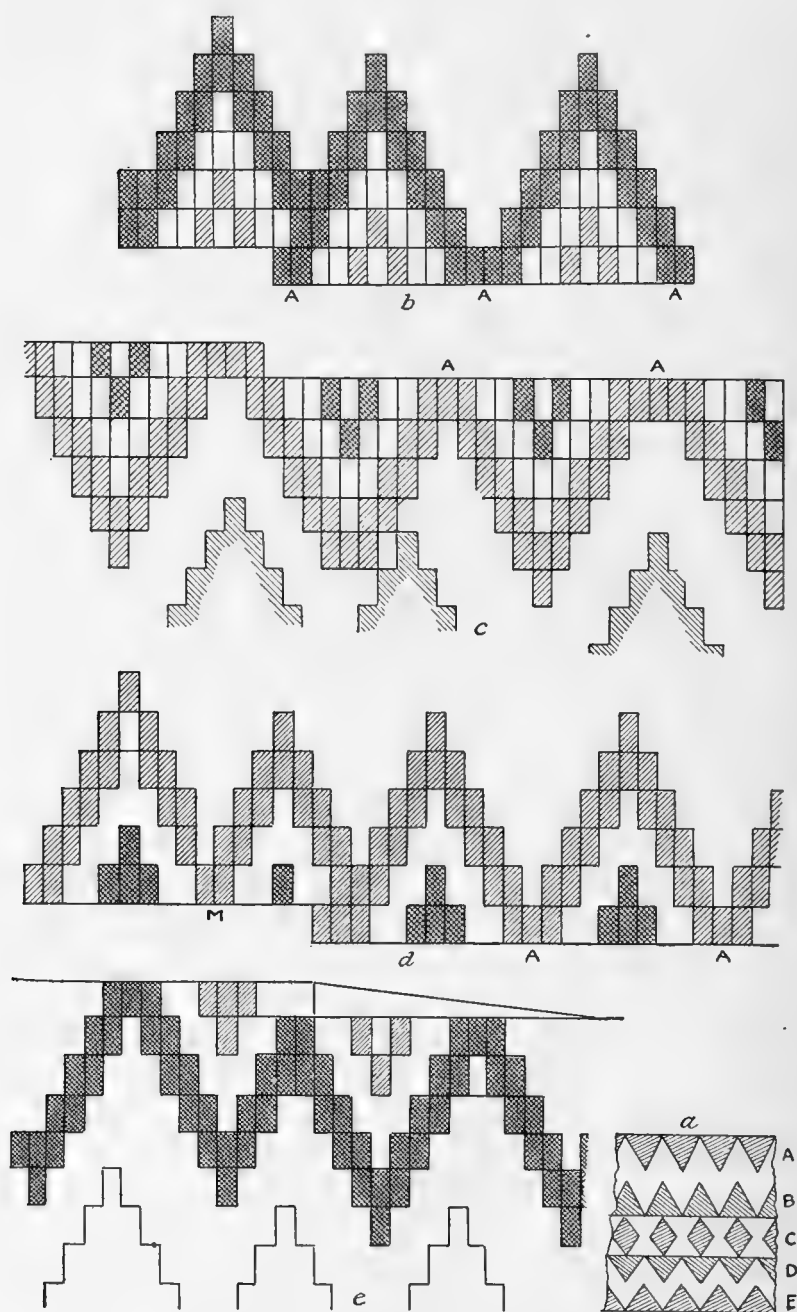


FIG. 57.—Adjustment of zigzag pattern to sides of basket. A.M.N.H. 16-4862

Band *C* (sketch *a*) consists of lozenge-shaped figures in black and white imbrication. Where the coils begin an unmistakable attempt was made to bring these diamonds symmetrically between the triangles of bands *D* and *B*. But on account of the curvature of the basket these triangles shift in their position and make the symmetrical alignment of band *C* impossible. This shifting and the corresponding lack of symmetry become more and more marked the farther the distance from the bottom of the basket.

The spaces of band *B* are again all uniform. All the junctions consist of three stitches, excepting near the break, as shown at *M* in sketch *d*. The corner where the break occurs is accurately represented.

Band *A* (sketch *e*) locks into band *B*; as *D* does into *E*. The bases of the inverted triangles of band *A* again vary like those of band *D*. The number of stitches connecting the bases of the triangles, beginning with the break, are as follows: 3, 4, 3, 3, 4, 3, 8 (corner), 1, 3, 2, 4, 6 (corner), 3, 4, 3, 3, 4, 5 (near corner), 4, 4, 2, 3, 3, 2 (at break and corner).

ALL-OVER LARGE FIGURES

The ornamentation of the basket shown in Figure 58 may be considered as all-over, diagonal, or horizontal, but for the purposes of this study may just as well be treated here. It will be seen that the upper left corners are bare, due to the fact that the vertical arms of the crosses in adjoining horizontal rows dovetail and that in the top row at the left corner there was no room for a complete cross. Usually the situation is reversed in the numerous patterns composed of vertical stripes which lean to the left, so that the bare space is in the upper right corner. Here a sequence of events due to placing the lowest crosses in *b* too far to the left, or in failing to begin a cross just before turning the corner in the top row (*a*), as well as the tendency for all workers to build true diagonals to the right in the direction of sewing, caused the placing of these stars as they are, more than compensating for any leftward lean of vertical lines. The bare upper left corners on this basket did not seem to disturb the esthetic taste of the worker as much as the balancing lower right corners. Perhaps they were a welcome relief. But it is interesting to note that the maker deemed a filler desirable for the lower right corner on the ends of the basket. The necessity for this in her mind must have been apparent before she could have progressed very far in her work. The five stars of the lowest row on the long sides are very evenly distributed, but the filler appears on both short ends.

There are many types of decoration besides the complicated horizontal band, which require circumference spacing and subdivision of the basket walls. All figures ranged in horizontal series, all-over effects, and vertical stripes are among the number. The few

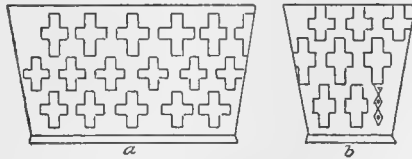


FIG. 58.—Decoration of sides of basket. Peabody Museum 61930

practically perfect specimens of horizontal and all-over designs may be discussed here, before taking up the vertical styles, since the latter bring with them a number of other problems not presented by the first group.

The first of these perfect specimens with a horizontal zigzag pattern in red, white and black, which has been admirably handled, has been sketched by Doctor Haeberlin in Figure 59. He discussed the design as follows:

There are four zigzags on each long side and two on each short side. The long sides are about 8 inches in length, the short sides about 4. (This is a *spa'panek* basket, of the same shape as the full-sized burden baskets.) At each of the four corners the zigzags are symmetrical with the edge of the basket. They extend over 12 coils and the different parts of all of them are in corresponding

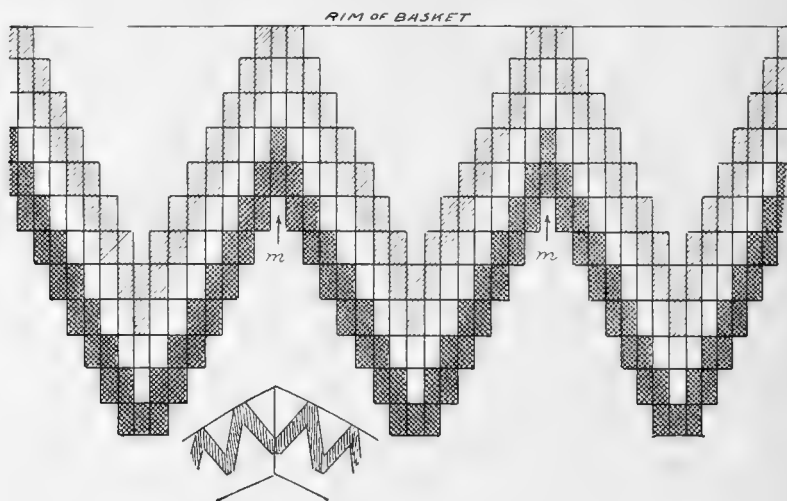


FIG. 59.—Adjustment of zigzag pattern to corner of basket. A.M.N.H. 16-4581

coils; that is to say, point *m*, Figure 59, is in the same coil in every zigzag. The top and bottom of the zigzags consist always of three stitches. This is a remarkable regularity, especially striking at the corner where the coil stops. What has been said above also obtains for this corner. This regularity was not brought about by counting the intervening unimbricated stitches, because these are not by any means of corresponding numbers. It seems to have been accomplished by dividing the first coil by eye into four parts on the long sides and two on the short sides. The ensuing difficulties were then avoided by making the unimbricated stitches larger and smaller as the case dictated. The stitches are irregular in size and number, excepting those of the imbricated band, which are at least always constant in number.

An all-over decoration which is very pleasing to us on account of its regularity is shown in Figure 60. Doctor Haeberlin says:

This arrangement is so regular that the intention of dividing the circumference into eight parts when the first imbricated coil was made is quite obvious. The number of stitches between the blocks did not furnish a basis of division because these vary, but the divisions must have been made by eye.

It is, of course, possible that the sewing splint was used as a gauge, but realizing the comparative infrequency of such measuring, it is at least doubtful if this was done. There are four black diagonal rows of blocks and four red ones, which divide the circumference into eighths.

Plate 46, *e*, shows a remarkably fine treatment of flying birds. Note the gradually increased size of the figures toward the rim. They could hardly be better adjusted to the given space. Only two minor defects are apparent in the photograph. The first is a correction of the direction of the bird's head in the lower left figure, the other the failure to maintain a straight line for the edges of the bird's wings on the right, such as has been done so beautifully on the left. This is due, of course, to the leftward lean and the troublesome right corner, but nevertheless the basket is a remarkable piece of work. The bulges and depressions in the walls are an interesting and rather rare structural defect. Usually Thompson women are perfect builders. (See also pl. 46, *g*.)

There are two baskets portrayed among Doctor Haeberlin's sketches the long sides of which are decorated with zigzags which do not extend to the corners and where other problems than circumference spacing arise. These are shown in Figures 61 and 62.

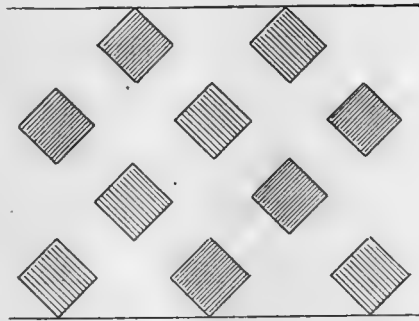


FIG. 60.—Diagonal arrangement. A.M.N.H. 16-1044

"The design on one long side in Figure 61, *a, b*, does not require special comment. It was interpreted as a snake and small triangles." The head and tail as they are arranged here fill the upper corners of the field very well indeed, although in her effort to fill the right corner the artist overemphasized her spacing in that direction. The general decoration of the basket marks it as a rare specimen and leads to the suspicion that it may be of Lillooet rather than of Thompson origin, since Mr. Teit says that the Thompson are not addicted to the use of different patterns for the different faces, or even for a fourth face, while the Lillooet frequently used this peculiar style.

Doctor Haeberlin's discussion concerns the three sides the upper portions of which are beaded, below which is a broad slanting design composed of short horizontal and vertical sections. The large beaded field is another typical Lillooet feature, but since the basket is listed as a Fraser River specimen it is included here.

The side of the basket shown in Figure 61, *c*, is very interesting. The steplike figure (*c*) consists exclusively of black imbricated lines enclosed by two white imbricated lines. Accordingly the upper end of the ornament ought to extend over three coils—one black and two white coils. But this is not the case; it only extends over two. How is the principle of the step ornament carried out under

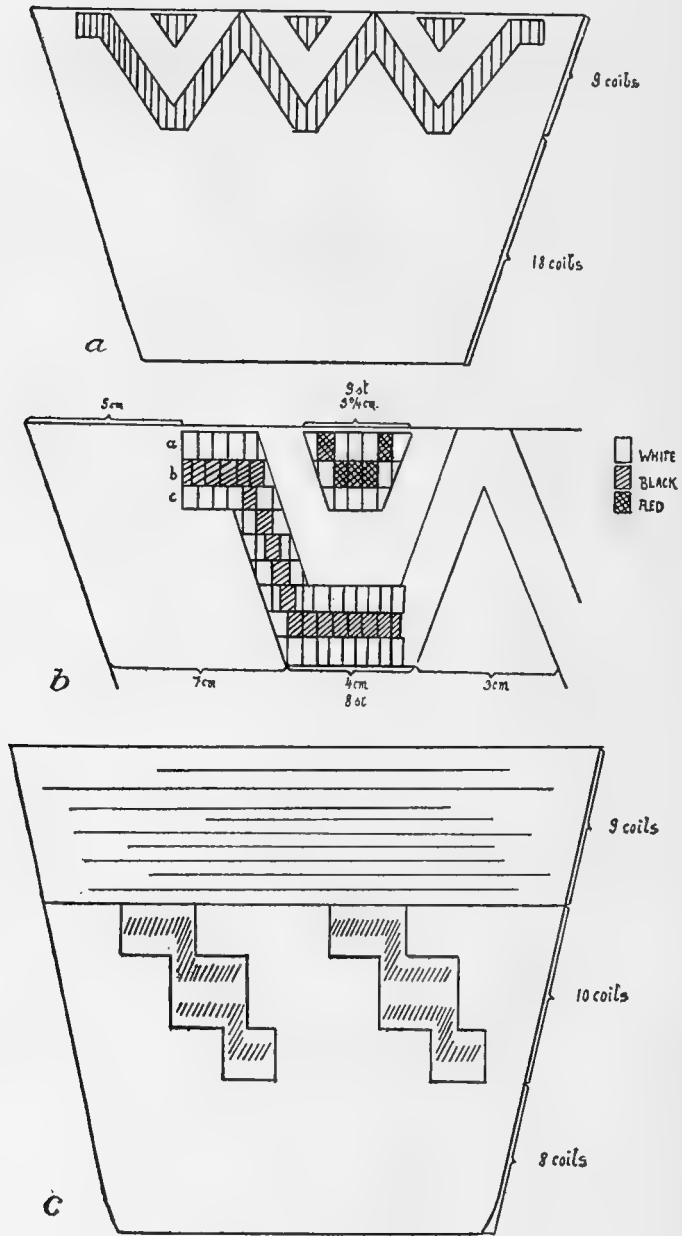


FIG. 61.—Arrangement of zigzag pattern. U.S.N.M. 219879

these conditions? The maker resorts to the following method. Instead of imbricating the top coil with one strip, as is ordinarily the case, she used two, one over the other, first black, and above it white. Thus the design is carried through and the black line appears between the two white ones. The maker did not move up one coil for the top white line because she had already started the snake on the opposite long side (*a*) in that coil and the jump occurs at the edge between the sides *a* and *b*. The snake must extend over the same number of coils as the beadwork of the other sides. The mistake was made when the weaver started the lowest extremity of the stepped ornament on the lower part of the basket. She ought to have started one coil sooner than she did. What has been said of the treatment of the top coil on the side *c* also pertains to the corresponding parts of the ornaments on the other sides.

VERTICAL STRIPES AND SERIES

The vertical styles of decoration, or those which, while not vertical, do not encircle the basket, are numerous, and offer perhaps the best opportunities for the study of the points in which we are interested. The question as to whether these stripes or series extend all the way from base to rim or not does not affect the problems which the women have to solve, except in one particular. Vertical stripes or series begun at the base of a basket are more likely to be out of line and place in the upper portion of the basket than those which have been begun somewhere about halfway between the base and the rim. In the latter case the peculiar twisted form which the basket generally acquires has had ample chance to become apparent by the time the structure is partly completed, and the woman has at least some idea of the degree of structural defect she is likely to have to deal with and can space accordingly. Designs begun at the very bottom are perhaps spaced correctly around the circumference of the base, but the subsequent turning of corners of the basket wall so completely alters the relation of the faces to the bottom that designs frequently are quite out of place. It often happens that a woman appears to take this probable difficulty into account at the beginning, for in no other way could we find a reason for the extremely one-sided spacing sometimes seen, except the lack of even average ability to calculate distances. Her overanxiety to correct the trouble at the outset sometimes results in even more pronounced incongruities than usual, since the defects in structure occasionally do not come up to her anticipations.

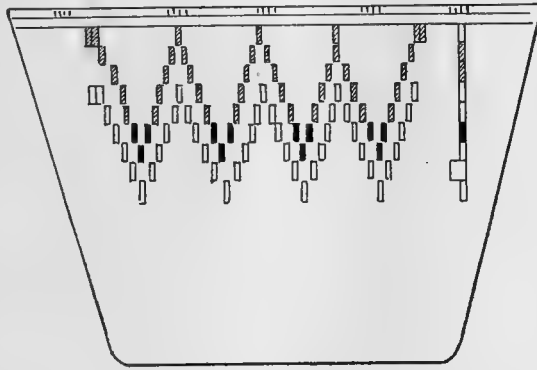


FIG. 62.—Arrangement of zigzag design. U.S.N.M. 216408

FILLERS

Figure 62 shows the presence of a filler, the most interesting feature of which seems to be the beginning of another zigzag which the maker soon discovered would not fit in the remaining space and therefore abandoned for a small filler. Otherwise the distances between the points are remarkably constant and accurate.

In such a basket as that shown in Figure 63 the vertical series require a circumference division, but the design in itself presents problems of horizontal balancing of the arms, as well as their vertical

spacing one from the other. Discussing this specimen, Doctor Haeberlin says:

There are in most of these vertical arrangements four rectangular areas which lie one below the other, downward from the rim (fig. 63, *a*). But this idea could not be carried out in all cases because of the pronounced curvature of the basket walls. The result is that the ornamental combinations seen in sketches *b*, *c*, and *d* also occur. At each right corner (*b*) on all four faces a short design of only two rectangles is found. Really these are fillers.

In addition, at one place, not at a corner, the unusual and incongruous device shown in sketch *c* is placed between the usual ornaments which are here too far apart. The women quite often resort to some such means of filling large spaces, and the type of figure chosen depends entirely upon the individual taste of the artist. Sketch *d* shows another odd treatment at the top of one of the usual ornaments which can not be explained on the

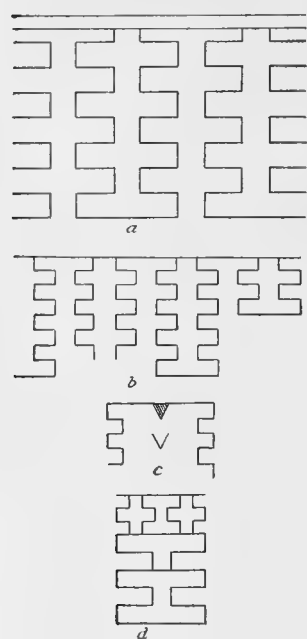


FIG. 63.—Fillers on side of basket.
U.S.N.M. 222032

ground of filling a space, but rather seems like an instance of playing with the design element.

The rectangles of all the ornaments vary greatly in length, ranging from 2 to over 5 inches. Inasmuch as the basket appears to be very old and a number of stitches have been broken it is not always possible to locate mistakes in technique or in carrying out the color scheme, which is here executed in white and black. The black imbrication material is cloth and forms the outline of the figure.

Doctor Haeberlin says that the basket maker has succeeded well in placing the corresponding rectangles of the figures along the same coil. Their leftward lean is particularly noticeable, although they have been trued in the sketches.

Figure 64 illustrates a beautiful corner of an extremely well made basket. The filler in this case was not needed to help to cover a side, but rather serves as a decoration for the corner itself and its character is in perfect keeping with that of the main design. The basket sketched in Figure 65 affords an instructive contrast, showing in *a* the almost perfect spacing of the zigzags at the bottom if we consider, as we must, that one farthest to the right which is carried around the corner. But the ever-present leftward lean and the "wrenched" corners or oblique edges occasion again the filler seen at *M*. This is very carefully placed and evenly spaced in accordance with the four zigzags to the left, so that along the rim almost no fault could be found with the decoration. Nearly as good a distribution occurs at the bottom. All of this woman's difficulties would have been met if in building the walls she had bent her coil at the correct places for the corners, a little more to the right at each round, instead of attempting, as do most of them, to make the corner appear vertical from a full view of any face, or in other words, to bring the right corner around on to the face.

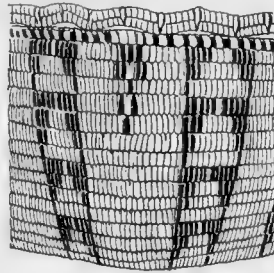


FIG. 64.—Filler on corner of basket

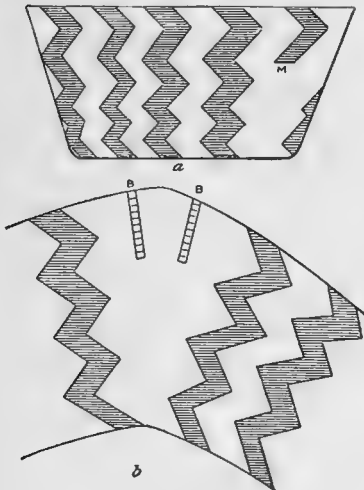


FIG. 65.—Filler on corner of basket.
U.S.N.M. 216426

Figure 65, *b*, shows the treatment of another corner, with the selection of two utterly incongruous elements as fillers, which, however, are symmetrically placed. They are merely single rows of imbricated stitches.

Figure 66 illustrates another basket with a corner filler which ought not to have been difficult, simple as it is, to place exactly on the corner, but the same trouble prevails here as elsewhere, and the corner was turned too soon.

The basket sketched in Figure 67 is ornamented with vertical series of imbricated blocks, all of which extend over three coils except those in the topmost row. These cover only two. By change of color the imbrication forms a vertical subdivision in each block, where every colored imbricated stitch covers two coil stitches, or more rarely three. The blocks are arranged regularly, a circumstance which is not attained by counting the stitches between

them, because these vary, but the alignment is made entirely by eye. (Fig. 67, *d*.) An odd inconsistency is found in the vertical spacing between the blocks. The intervals between all horizontal series are four unimbricated coils, except at the interval *e* (fig. 67, *a*). Here there are only three. As may be seen from sketch *b*, in Figure 67, all imbricated sections, both red and white, cover two coil stitches ordinarily, leaving one stitch without imbrication. But occasionally the imbrication crosses three stitches; that is, three coil stitches are covered by one imbricated stitch (*d*) rather than the usual single coil stitch that is so treated on the majority of the baskets.

It has been said that with the exception of the top row, the blocks extend over three coils, the middle being unimbricated in each case, but in the top row this center coil is omitted, as shown in Figure 67, *c*.

In the alignment of the blocks over one another there is considerable variation of the distances maintained between the different rows; the intervals range from 4 to 10 stitches. Even between the blocks in two adjoining rows there are not the same number of stitches at different heights. For instance, there may be more in one space (fig. 67, *d*) than at another. But the distances are all approximately constant because an effort has been made to secure a perfect alignment, even if it has been done only by eye.

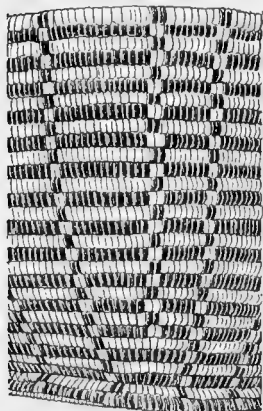


FIG. 66.—Filler on corner of basket

Ordinarily the vertical rows of blocks are continuous and there are eight between the rim and the bottom of the basket. But due to the vertical alignment and the conical shape of the structure certain sectors without ornamentation would be bound to occur under this plan of decoration. (Fig. 67, *e*.) The gaps between series are, of course, widest at the rim and are filled in with vertical rows of four blocks each, while the blocks in themselves are simplified forms of those used elsewhere, as may be noted in Figure 67, *f*. It is rather interesting that the rectangles are here carried out only in red. There are six sectors filled out in this manner, but on the whole the work on them is quite haphazard and certainly does not rest upon any scheme of counting, and every sector is different in some particular. At times the blocks consist of only two imbricated stitches; again, near the rim they are quite as complete as those used in the main design; while those below are made smaller to accommodate them to the narrower space. (Fig. 67, *g*.) In addition to all the other irregularities the blocks in these places are not located upon the same coils as the corresponding ones in the adjacent complete rows (fig. 67, *h*), nor is the ordinary number of intervening coils adhered to. The six sectors are also unevenly distributed about the basket, for

two of them are near two corners while four are near the other two. One gap is quite as wide as those which have been supplied with these "fillers" and this is left entirely bare.

Such a lack of symmetry is due not only to the fact that no attempt is made to count the stitches or to measure spaces, except by eye, but also to the woman's poor judgment in spacing and incapacity for calculation. Even in such work as this, where study reveals so many discrepancies, it is surprising how well the finished product appears to the casual observer, and it is indeed remarkable that such good results are obtained with such a complicated problem and by such methods as each woman has at her command. No

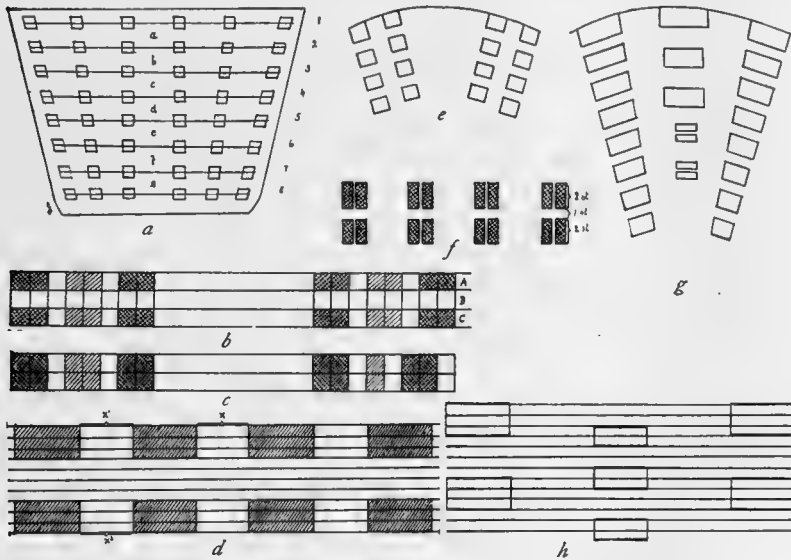


FIG. 67.—Filler on corner of basket. U.S.N.M. 277607. Cross hatching: red; diagonal hatching: white; white: unimbricated

better gauge than a true eye could be desired, but many women, as with ourselves, do not possess this gift. And so, without natural or mechanical aid, they nevertheless struggle with the most perplexing and patience-exhausting artistic and technical problems, with results that are often not without real beauty.

Figure 68 and Plate 47, *d*, give a similar basket, in which all the blocks extend over two coils and each horizontal row consists of blocks which lie at the same level. The number of coils in the intervals between the horizontal rows is five in each case except the last, where it increases to six. Vertically the blocks are very carefully aligned, but entirely by eye. The intervening stitches vary in number not only between different vertical rows of blocks but also between different pairs of single blocks in any two adjoining rows.

The distances between the different vertical rows vary from 4 to about 10 stitches, showing that the circumference division for spacing the figures is in this case not very accurate. The colors employed are white, red, and black, and the succession is as shown in Figure 68, *b*, and is adhered to throughout the whole basket, each vertical row being always executed in the same colors, with one exception, which is obviously the result of an early mistake on the part of the basket maker. The red in this row (see *c*) is applied in the same fashion as the black in other rows on either side of a white imbricated stitch, instead of between two white ones. The open spaces near the

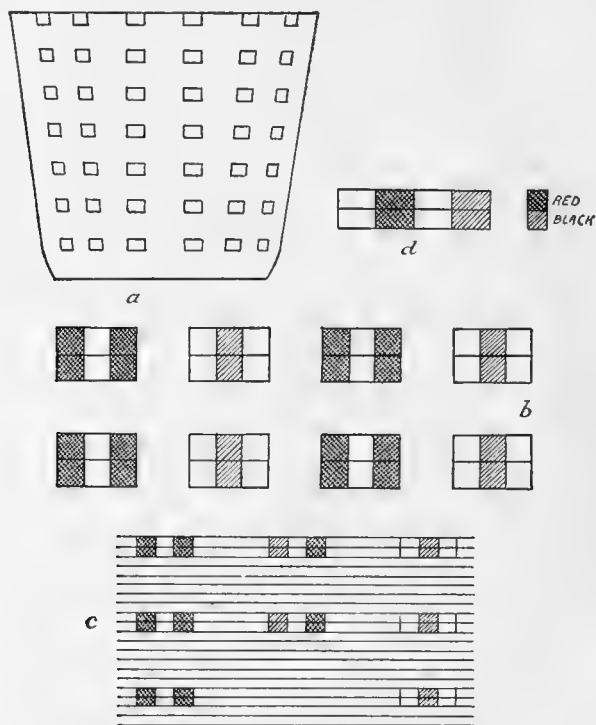


FIG. 68.—Vertical arrangement of ornamentation.
U.S.N.M. 222595

rim are filled out by incomplete vertical rows, as illustrated in Figure 68, *c*. Three of these spaces are at corners; the fourth, however, is several inches away from the corner which itself has no open space. In contradistinction to the basket pictured in Figure 67, the blocks of the fillers of Figure 68 are at the same coil level as the blocks of the full series and are on the whole better arranged than those on the former basket. The arrangement of colors in the blocks of the fillers is interesting and may be seen in sketch *d*. It is consistent for all fillers. An odd feature is a fifth filler ornamented with only one block at the rim.

Figure 69 not only shows the introduction of a filler in the upper right corner but an interesting treatment of one of the stripes near the bottom at the corner of the basket. Here, owing to miscalculation in spacing, the stripe was begun too far to the right and therefore was interfered with by the presence of the corner. In order not to have the stripe carry around on to the other side, the woman has resorted to the expedient sketched in Figure 69, *b*, where the treatment is reproduced so as to show the decoration on either face and at the corner (the middle). The stripe was begun with only one stitch and increased diagonally along the right edge where the edge of the wall occurs, until the space became wide enough for its increase to full size. Then, to balance this increase, an abrupt addition appears on the left side of the stripe.

The fillers frequently consist of different, smaller designs than the majority of those used, or else are portions of the prevailing ones. The baskets shown in Plates 12, *b*; 18, *a*; 23, *d*; 24, *g*; 26, *d*; 34, *a*, *c*, *d*, and 35, *e*, are examples of such a treatment. In most of these the tendency of the design to "run" to the left is very clearly seen. Good results as regards vertical stitching are obtained where the work is

not quite so accurate, and where the stitches of the new coil bifurcate those of the previous row to the right of the middle. But the irregularity in stitching frequently interferes with the creation of absolutely straight vertical edges, hence is not practicable for certain types of designs.

A straight edge is the prime essential, therefore the fault of leaning is considered much more glaring if an attempt is made in the middle of the band to correct the trend than if it is allowed to continue in the same direction, even when the slant is very pronounced.

In the baskets depicted in Plates 36, *j*, and 47, *a*, the maker attempted in vain to correct the trend of her right band, thus creating a bend in it. The introduction of animal figures at the corner, however, shows what poor success she had, although it will be noted that at the outset indications were certainly in favor of a good trend. It may be that she foresaw that, if she continued, the space would then be

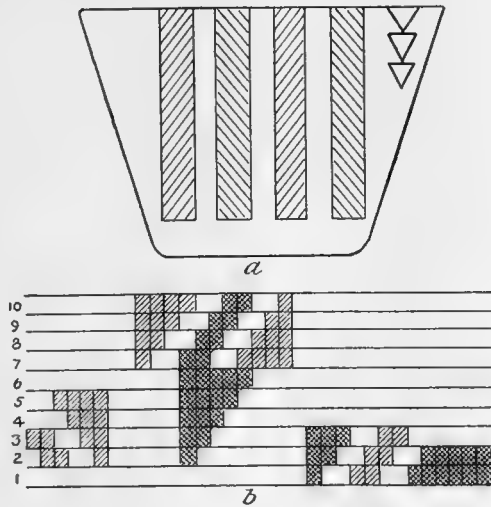


FIG. 69.—Filler. Peabody Museum 57203

too great between the third and fourth bands. Certainly it is rather odd that she should have known how to direct the band to the right in the beginning in a way which was the only possible solution of her difficulty and not have applied this principle throughout for all the bands which ought to have leaned in that direction. It may be that the care involved in carrying out the plan proved too much in addition to all the other points about the work which had to be kept in mind, or that owing to the technique the band as it progressed would necessarily have had to lean too far to the right.

In many cases the right band is begun so far to the left (for example, see pls. 24, *g*; 77) that it is difficult to understand how its maker did not foresee the result. The band in this particular example, which properly should balance the one on the left, has not the same degree of slant ordinarily encountered, but it was so badly spaced that not one but two additional design elements were required to fill the vacant spot.

Figure 70, *a*, *b*, show the introduction of a filler the presence of which is not so much demanded by the leaning verticals, which in this case are not enough out of line to affect the corner seriously, as on account of a miscalculation in placing them when the wall was first begun. The ends of the baskets are alike and the long sides also resemble each other except that on one the filler consists of a double row of imbricated stitches, while on the other it is single.

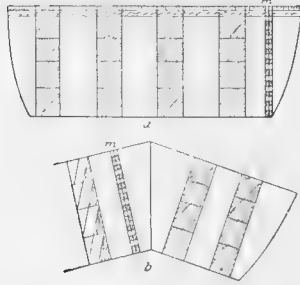


FIG. 70.—Filler. U.S.N.M. 222586

The checker idea introduced here is hardly in keeping with the diagonal subdivision of the stripes, but as has been pointed out before, such artistic incongruities are by no means rare. The space to be filled in this case would admit of little else.

The sketches in Figure 71 show the four sides of a basket, the first of which (*a*) is remarkable for the even distribution of the meanders. Although the same number of stitches is not used every time, probably because of the varying width of the sewing splint, the distances maintained are very exact. The short side (*b*) shows the same character of treatment as far as an even distribution is concerned. On the second long side (*c*) it has been found necessary to insert a filler, as was the case also on the fourth side (*d*). The order of the sides is reckoned from the break, which shows where the walls were begun. This is an interesting specimen, since it shows that a woman who is capable of making very exact circumference divisions and calculations does not always keep up to standard, even on the same basket. It may be that her attention wandered or that it was difficult to concentrate for long on her complicated task. At any rate, so

important is the work on the lowest coil that, once started, with reasonable care a very good distribution could be maintained. Here it seems that not even for the extent of the circumference of the bottom did the woman succeed in measuring accurately, but even so the basket is very much better handled than those which have just been discussed.

It is probable that in most baskets bearing corner designs fillers were not at first intended, but that the necessity for their incorporation was felt as the work progressed. Undoubtedly this was so in the basket shown in Plate 49, *f*.

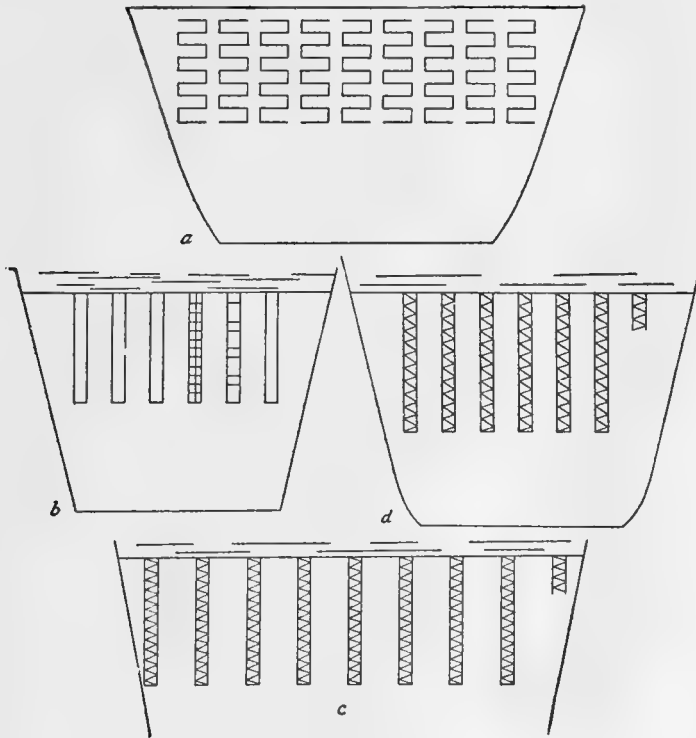


FIG. 71.—Filler

Some women, however, to judge from the character of these small figures, evidently know that the filler is, in their work, usually unavoidable and plan for it, either creating for these spaces smaller, complete designs, which are totally different, as in Plates 47, *b*; 49, *f*, or else cutting down or rearranging those already in use so that their proportions are appropriate, as in Plates 33, *e*, and 39, *c*. The presence of these "foreign" elements seldom seems to disturb the esthetic sense of the people; indeed, if the other bands come out fairly well, so that fillers are needed in either corner, they are much preferred, and it must be admitted that the effect is better than when they are absent (pl. 40, *b*).

According to information collected from a number of women only a comparatively small group of designs could be used as fillers for the left-over upper corners in the trapezoidal fields of burden baskets. Flower designs were only rarely used in this way. On the other hand, one or two rather plain vertical "droppers" or stripes, or small combinations of arrowheads or half arrowheads which usually pointed downward, were most frequently employed. Half arrowhead designs of this character resemble those shown in Sketches 277 and 292 but are without borders. Other fillers are typified in Sketches 245, 254, 288, and 293. Still other patterns are Nos. 42, 66, 75, 173 extended vertically, 176, 230 upside down, 303, 361, 363 and 364, 433, 434, 506, 625, and 626, although there was some doubt expressed regarding 684, 685, 698, and 699. The remainder of the list includes 45, 63, 64, 69, 70, 144, 145, 150 in one line vertically, 159-162, 277 rather rarely, 294-296 rather rarely, 331, 357 and 358 arranged vertically, 359,

365, 395, 398, 438, 514 as a single figure, 524, 551 with ends turned down, 570, 571, 627, and 757 in one line vertically.⁵⁰

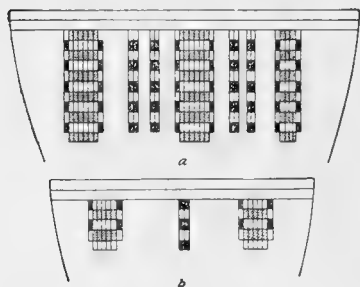


FIG. 72.—Symmetrical arrangement on side of basket. U.S.N.M. 216412

at the top of the left stripe. A similar incongruity occurs in the widths of the stripes of the other sides, those on *b* being more nearly equal. This is still another method of correcting miscalculation in circumference spacing which has not been touched upon before.

Doctor Haeberlin has sketched in Figure 73 a basket belonging to the collection in the United States National Museum which is reported to come from the Fraser River region. One side contains no designs except a band of plain beading near the top. According to Mr. Teit's observations and data, this should be a Lillooet specimen, perhaps traded into the Fraser region, for the Thompsons are said never to have decorated three sides of a basket with imbrication to the exclusion of the fourth. On the first imbricated side, which is shown in *a*, the very poor adjustment of the design is obvious and in distinct contrast to *b*, which is excellently done except for the slightly wider space between the third and fourth stripes. This gives

⁵⁰ Compare Plates 12, *b*; 18, *a*; 23, *d*; 24, *g*; 26, *a*, *d*, *f*; 33, *c*; 34, *a*, *c*, *d*; 35, *c*, *e*; 38, *c*; 39, *a*, *c*; 40, *a*; 51, *i*; 55, *e*, *h*; 56, *b*; 57, *e*; 77. In these additional patterns will be found.

us another glimpse at personalities. There are women who start well and finish less perfectly and there are those who having spoiled one side are not deterred from improving the next. The fourth side (fig. 73, *c*) is interesting because of the omission of the lowest stitch on the right side of the third stripe, doubtless because the whole would then appear too near the corner.

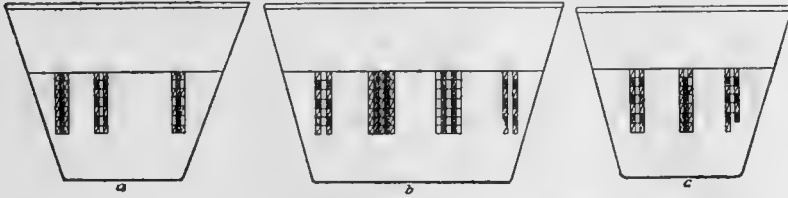


FIG. 73.—Symmetrical arrangement on sides of basket. U.S.N.M. 217442

One of the most perfect examples of fine technique and circumference spacing is to be seen in Figure 74, *a-d*, which shows better than a discussion the unusually even distribution of the bands, while the regular alternation of colors is most pleasing. The blocks themselves are beautiful in their regularity and there are no mistakes. All

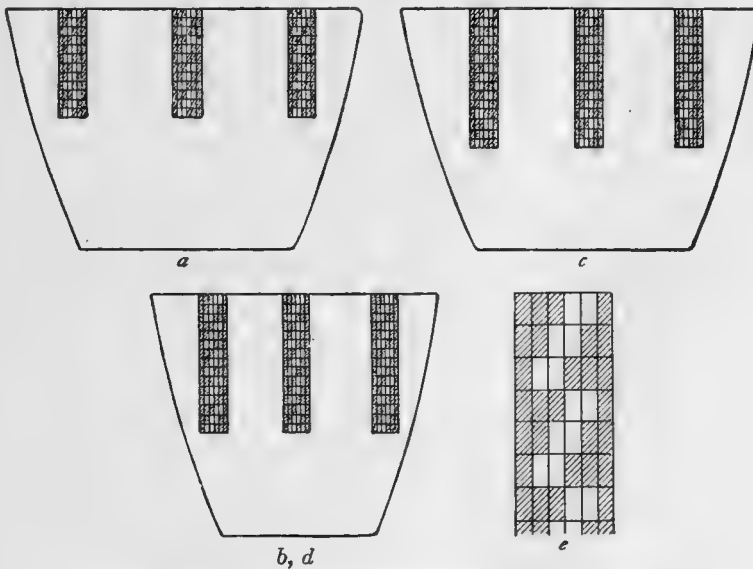


FIG. 74.—Basket with symmetrical ornamentation. U.S.N.M. 217459

12 stripes are worked as shown in Figure 74, *e*. But the stripes of the sides *b*, *c*, and *d* are longer than those of *a*, for what reason can not be determined. With such perfect work as this, it is evident that this peculiarity is intentional.

A nice example of almost complete symmetry in design and color may be seen in Figure 75. The character of the vertical pattern has

been carefully worked out by Doctor Haeberlin in Sketch *a*. His notes refer to the lowest triangles which in each series are only three instead of four stitches wide across the top; all the others in the series conform to the latter measurement. The rim is entirely imbricated with red and black stitches, the colors being arranged to form a contrast with the scheme of the vertical design immediately below; that is, above a design worked in red and white the rim stitches are black; above a black and white figure the stitches are red. The alternation of the two rim colors lies about halfway between the

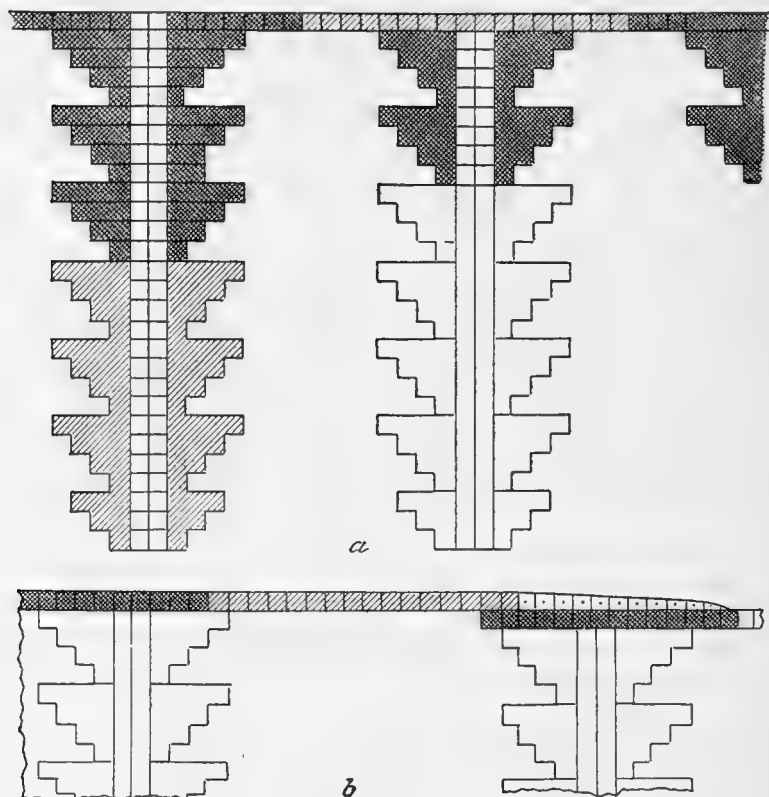


FIG. 75.—Basket with symmetrical ornamentation. A.M.N.H. 16-9543

vertical patterns. At the rim the spaces between the vertical stripes are divided into the two colors in the following manner:

Space 1.....	3 black.....	3 red.
Space 2.....	3 red.....	2 black.
Space 3.....	2 black.....	3 red.
Space 4.....	8 red.....	9 black, corner.
Space 5.....	4 black.....	5 red.
Space 6.....	9 red.....	6 black, corner.
Space 7.....	3 black.....	4 red (shown in sketch).
Space 8.....	3 red.....	3 black (shown in sketch).
Space 9.....	6 black.....	6 red, corner.
Space 10.....	5 red.....	6 black.

Doctor Haeberlin says:

At the last corner she gets into difficulties, for this is the place where the jump occurs, or where the coil begins and ends. The arrangement there is as shown in sketch *b* of Figure 75.

The symmetry in this basket is excellent, as is the balancing of color. It is secured first by the very careful circumference spacing of the vertical designs and secondly by the treatment of the corners, where more space is allowed between the designs than elsewhere.

SMALL DESIGNS ON VERTICAL STRIPES

There are a number of baskets decorated with vertical stripes and similar patterns where the subdivision into small designs has involved more difficulties and consequent errors than the placing of the stripes themselves or the treatment of the corners. Indeed it frequently happens that the basket wall is exceedingly well subdivided, so that at first glance the entire basket presents a remarkably symmetrical appearance, but upon examination the subdivision of the stripes or similar patterns into small designs reveals a multitude of small errors. This fact seems to indicate that the two problems are utterly different, allied though they appear to be, and that the case of basket making is analogous to that of sculpture, painting, music, or any other of the fine arts. There are those artists who have broad conceptions and splendid ideas which they can sketch in a big way very effectively, but when it comes to execution the work had better be left not simply to artisans, but to artists who finish their work with the utmost nicety and attention to detail. The real artist who possesses both of these qualifications to a marked degree is occasionally found, here in British Columbia as elsewhere, as we have seen from such specimens as those portrayed in Figures 57 and 59 (pp. 270, 272) where every point is perfect.

We have already discussed some baskets which displayed small errors (if the term may be allowed as meaning smaller in size), as well as those of spacing on the basket itself. The baskets about to be discussed are to be regarded almost exclusively from the point of view of the little errors made in stitches and color, because these are the more conspicuous points in this group. Nevertheless some of the old mistakes in spacing are evident and will be noted briefly.

It should not be inferred that these so-called small errors are regarded as of any less importance artistically, mechanically, or psychologically than those of the other type. They are controlled in part by some of the same principles, but their smaller rhythms, the necessity for closer attention to the detail of the stitch, the very fact that smaller spaces are involved as well as color and more minute and numerous repetitions of an idea, give the situation a different aspect.

Figure 76 depicts a basket in which the shortcomings of the individual maker are as clearly disclosed as if one knew her personally. Beginning with the bottom coil of the walls, as shown in *a*, *b*, and *d*, it is evident that she planned to border her vertical stripes with two rows of stitches instead of the one row which she adopted at the next round. Evidently she was influenced in her decision to make the change by the fact that when she reached the end of the first side at the corner she discovered that by poor measuring the edge of her last stripe on this face would come exactly at the corner, whereas the first stripe was begun $2\frac{1}{2}$ centimeters in from the left corner. Nevertheless, on the succeeding three sides she continued putting in two imbricated stitches where the edge of each stripe was to come, although she had omitted the second stitch at the corner just discussed.

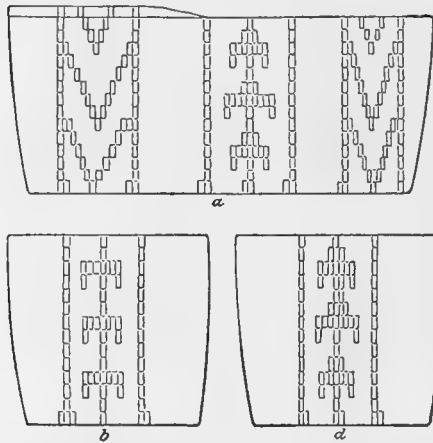


FIG. 76.—Basket showing change in the plan of decoration. U.S.N.M. 216413

above the two, thus giving the base of the figure its unsymmetrical appearance. In the second row, in the first vertical stripe on the side marked *a*, the edge stitches of the vertical stripe are placed above the outside stitches of the two used in the first round; in the central stripe one side is continued upward from the inner stitch, the other from the outer. The third stripe was necessarily continued from the inner of the two stitches of the first coil because of the short distance between the second and third stripes, which perhaps was now more apparent to her. On the end (*b*) the continuation of the stripe from its foundation of two (and three) stitches for either edge is symmetrical, but does not correspond to what occurred on the first face, since here the continuation proceeds from the inner of the two stitches on each edge. On the second long face we have still other methods of procedure, as we have again on the second end. Doctor Haeberlin's notes state that the stitches on the entire basket are unusually irregular, part of which

In addition to this mistake, in the first vertical stripe she had placed one too many stitches so that the bottom chevron was not exactly centered, necessitating an extra stitch on either side where the chevron extends to the edge at some distance up on the stripe. Then in the central stripe not only on this side, but also on the opposite long face, she began the design in the stripe with two stitches, which in the following round she reduced to one which could not be (or was not) centered

may be accounted for quite readily by the uneven width of the sewing splints, as may be noted in the center of the second stripe on face *a*, a circumstance which here makes the two "arms" of the crosspiece quite asymmetrical. On the whole, one can quite easily perceive from her handiwork the careless disposition of the woman, who not only prepared her splints badly, but likewise was so little able to fix her attention on the work in hand, or was so lightly blessed with a love of order, that she could not in two consecutive stripes maintain the same general procedure, although she evidently had a definite scheme of decoration in mind, which was well planned, not only for the basket, but in color, where the imbrication for the stripes is alternately red and black; and to her credit be it said that she did not need a "filler." The indications are in favor of a mind which can visualize and plan in a large way, but which can not execute with nicety.

The basket shown in Plate 49, *b*, and Figure 77 is extremely interesting from the standpoint of small rhythms and mistakes. On the

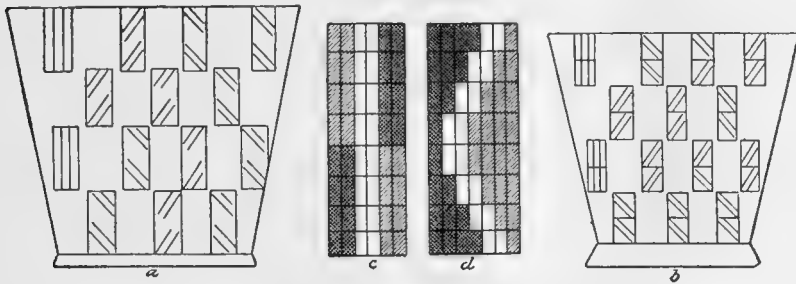


FIG. 77.—Basket illustrating lack of symmetry in detail

whole the design is quite well conceived and executed and it is quite evident what the maker's intentions were. Doctor Haeberlin has not given any photographs of the long sides, but there is enough material for study on the ends of the basket. Beginning with side *a*, on the left end, since the work progressed toward the right, it is evident that the intention was to ornament each block with two diagonal lines, and judging from the blocks on both ends the predominating idea was to have those on the lowest tier run up toward the left. But in the middle block this direction was shifted toward the right. Whether this was the original intention and the maker changed her mind, or a mistake, can not be stated. With the beginning of the second tier it was found that the increase in size of the face owing to the slant of the walls would permit of inserting another block at the left. Probably this had not been previously considered. This is merely assumed, however, due to the change in ornamentation from the established diagonal to an utterly incongruous vertical line running up the middle of the block. Such is usually the character of

the filler. It is true that the filler most frequently occupies the right side, but it has occasionally been seen on the left. It would be interesting to know what the maker had to say on the subject, for only she could settle the question. The women are not very prone to introduce foreign elements except in the filler, and this is the consideration that influences our assumption in this case. In the second tier of blocks the same idea of diagonals is consistently carried out as in the first, namely, they lean in the first block to the left, in the second to the right, and in the third to the left again. It is not entirely fair to examine one side of a basket without simultaneously presenting the other three sides, since the structure is a spiral coil and with the addition of each new coil the entire circuit of the basket must be encompassed. In this way it is very easy for the artist to carry over from one face to another her problems and thought processes almost mechanically, especially when there is so much to attend to, so that she frequently forgets to make the required changes necessary in a new situation. In the third and fourth tiers she failed to maintain her rhythms of direction, and it is not possible to say what she had in mind, whether the left blocks show mistakes or an attempted change in scheme. At any rate the diagonals of the center blocks (not counting the fillers) do not alternate in direction with those on either side, although the right blocks in each tier are alike and the center ones are the same for the lower three rows of side *a*. It is interesting to notice the greater length of the top row of blocks, due to using one coil too many, and that the artist seemed to think it necessary to continue with her idea and start another diagonal, which spoils the effect (see pl. 49, *b*). It would have been better had she left the last coil plain.

With side *b* (fig. 77) the artist evidently had bad luck continually. It is almost impossible to reduce the diagonals to any sort of scheme. In the second and fourth tiers she made bad mistakes which would have been far less evident had she not changed the direction of the second diagonal.

The woman who worked on the basket sketched in Figure 78 evidently tried many experiments to overcome her difficulties. The worst of her troubles came from stripes which in some cases were too wide, but more often on account of additional stitches which were occasioned by narrower sewing splints and perhaps tighter sewing. These little inaccuracies are very unimportant where the sewing is plain but make themselves felt at once as soon as each stitch is imbricated, since definite numbers of these affect the stepped designs so often used. In Figure 78 almost every stripe reveals a different difficulty, not least among which are the truncation of the triangles where the stripes are too narrow or too broad to admit of their proper completion.

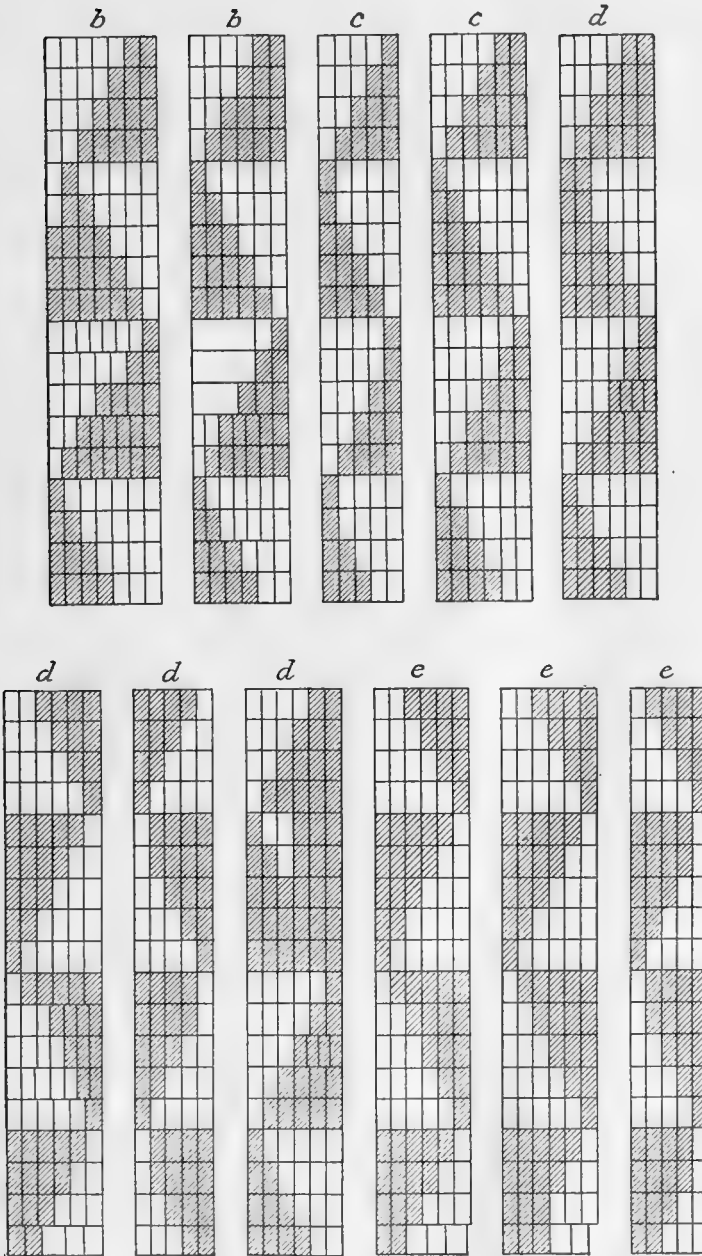


FIG. 78.—Diagonal design illustrating difficulties encountered in the arrangement of diagonal lines. A.M.N.H. 16.1-473

Figure 79, *a*, gives an idea of the stepped diagonals on eight vertical stripes on a large basket, showing only the lower end of one. The stripes are all the same as far as number of stitches and height of the lines is concerned, but the details of the lines vary and the succession of colors is changed.

"The interesting feature of these ornaments," writes Doctor Haerberlin, "is the difficulty into which the woman comes by starting the stripes with 12 stitches at the base. This accounts for the greater breadth of the black line in block 2 (fig. 79, *a*). She might have corrected this trouble in different ways. She chose to use one less stitch from the tenth coil up. Two other possibilities of solution

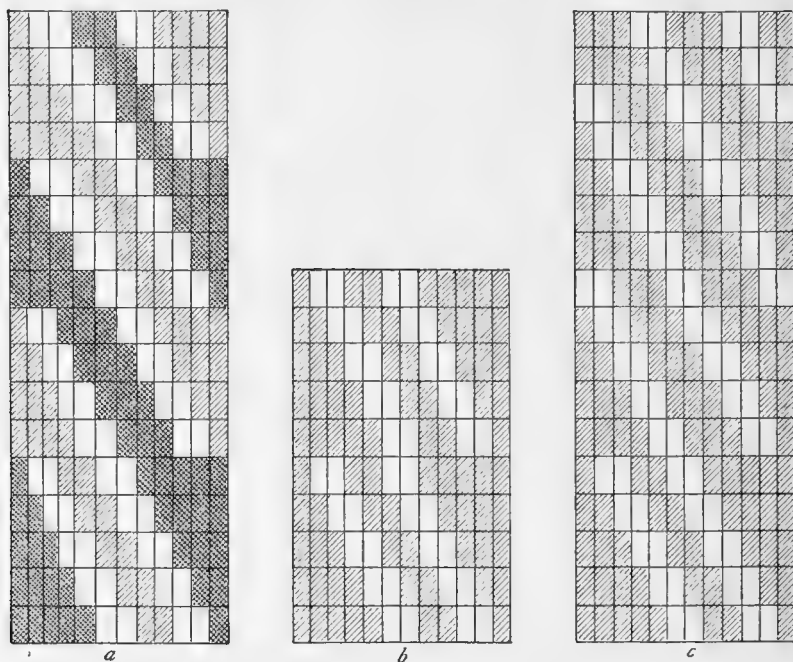


FIG. 79.—Diagonal design illustrating difficulties encountered in the arrangement of diagonal lines.
A.M.N.H. 16-8835

existed which are shown in Figure 79, *b*, *c*." In *a* the twelve-column arrangement requires a width of three stitches for the black diagonal, while in the upper eleven-column arrangement all the diagonals are two stitches wide. In *b* the central white diagonal is broken, while in *c* the diagonals lack the dark border.

A similar problem is encountered in the basket sketched in Figures 80 and 81. Note the regular circumference spacing of the stripes in Figure 80. In Figure 80, *b*, the detail drawing shows the impossibility of exactly centering the zigzag owing to the number of stitches which make up the width of the stripe. Figure 81 shows the device resorted to, in order to avoid an interference on the part of the angle of the zigzag with the edge.

If care is not taken to preserve the relative heights of different figures which make up the decoration of two kinds of vertical stripes on the same basket the frequent result is that the stripes which are

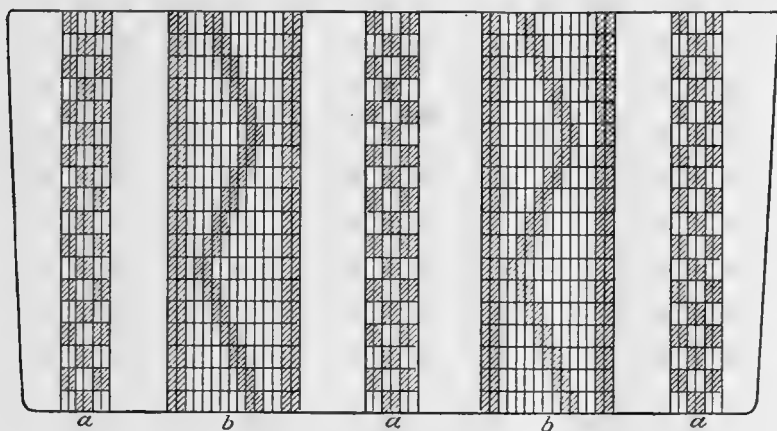


FIG. 80.—Design illustrating difficulties encountered in the arrangement of diagonal lines.
U.S.N.M. 217465

ornamented with figures a little shorter or taller than those introduced in the majority have the appearance of being unfinished at the rim, since because of different spacing there is room at the last for only incomplete elements. This may be seen in Figure 82.

Mistakes in imbrication made in the pattern itself are sometimes responsible for a complete change in the decorative scheme and it is quite probable that in this way new ideas occasionally present themselves to the artist. In Figure 83 a mistake made in the eighth coil led to the substitution of a single column of long rectangles for the divided rectangles of the lower coils.

The error made in the first stripe in Figure 84 has been rectified by the artist in succeeding stripes, showing that she had definite ideas, and that the omission of certain stitches in the first stripe was detected.

There are two kinds of vertical stripes on the long sides of the basket sketched in Figure 85. That lettered *b* determines the height of the basket. The slipped diagonals of *a* are adjusted to this. The basket was begun, as is usually the case, at one corner. The stripe shown in Figure 85, *b*, was the first one started and is at one end of the basket. After having completed her first diagonal on this end (*c*), on reaching the next stripe (*a*), also a stripe with diagonal lines, she discovered that a line four coils in height was too high for the



FIG. 81.—Design illustrating difficulties encountered in the arrangement of diagonal lines

three-coil triangles of the next stripe (*a*) and so began her second diagonal line three coils high (*c*) instead of making it four coils high as she did on stripe *a*. But the most interesting question to answer is,

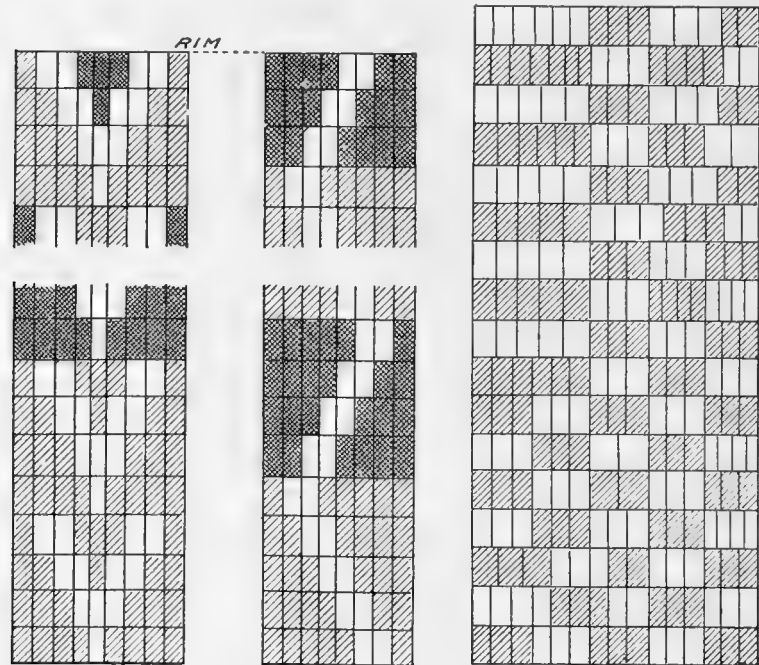


FIG. 82.—Diagonal design illustrating difficulties encountered in the arrangement of diagonal lines

FIG. 83.—Change of pattern of decoration. A.M.N.H. 16.1-547

why, having made this adjustment between the patterns of the two stripes, did she go back to her original idea for the remainder of the

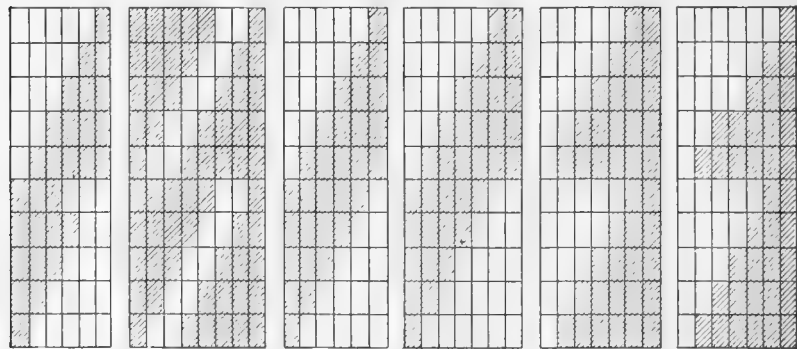


FIG. 84.—Errors in arrangements of diagonal patterns. A.M.N.H. 16.1-516

basket walls? She may have thought three-coil diagonal lines too short. At any rate, she very cleverly came out even at the top with her two patterns of different heights, which redounds to her credit.

On either side of the central figure of another basket is a band such as is sketched in Figure 86, and the diagonal lines in the stripes are symmetrically arranged as regards each other. Note the slight

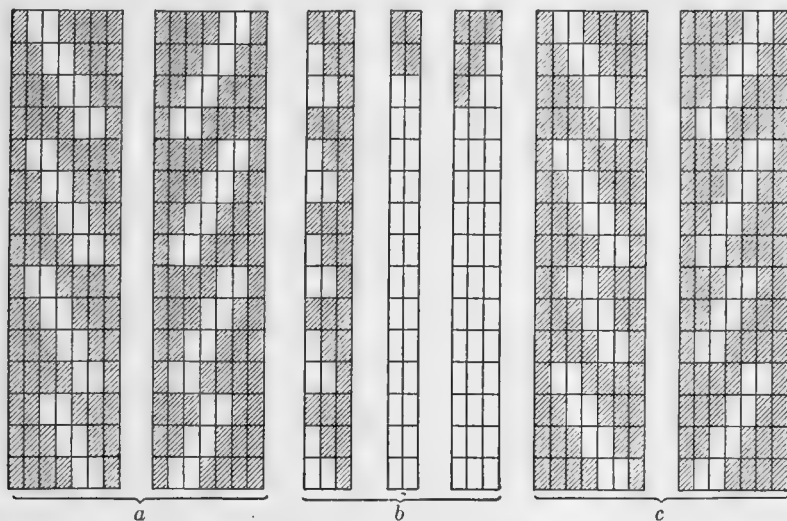


FIG. 85.—Errors in arrangements of diagonal patterns. A.M.N.H. 16.1-524

errors in Figure 86. Being of exactly the same height as the central figure and decorated with lines the length of which was not estimated according to the proposed height of the basket, the stripes have an incomplete appearance because the top diagonals have been cut short. The bottom diagonals of the stripe are four instead of three stitches wide. No doubt they were found to be too stubby, since a diagonal line is clearly what was wanted. The rhomboid, as has been said before, is a rare design element in Thompson art, unless we choose to call the attenuated figure which more resembles a diagonal line by this name.

A certain rather regular relation exists between an entirely imbricated surface and a high standard of perfection in the technical execution of designs, the reason for which is not far to seek. It has been stated that the women take much more care with the sewing splints which are to be used in connection with imbrication and likewise with the sewing; that is, the placing of each stitch. They realize

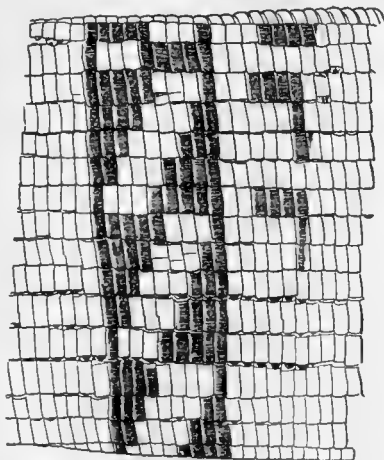


FIG. 86.—Errors in arrangements of diagonal patterns

that slight variations in the width of the splint show up very quickly in the imbrication which overlies it, particularly if designs are to be evolved from grouped stitches of contrasting colors. Therefore, on an entirely imbricated basket, both for background and designs, the chances are always for better work all around, although ill-matched

designs and other such troubles are often present on account of the shape of the basket to which an unadaptable design may be applied.

A beautiful example of an entirely imbricated storage basket is given in Figure 87 and Plate 15, *c*. Sketch *b* of this figure gives a detail of the design. Doctor Haeberlin has taken the trouble to count the stitches at all points on the basket corresponding to those marked *A* and *B* in the figure, and the accompanying table shows what remarkable uniformity has been found in the spacing. Even with such accurate work there is an asymmetrical grouping of the series of diamonds on a short end

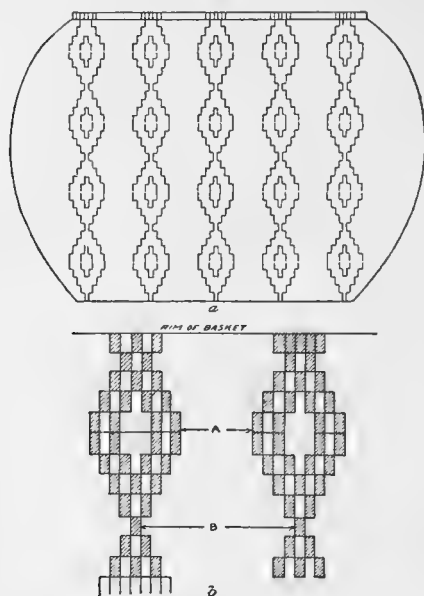


FIG. 87.—Basket illustrating uniformity of design.
A.M.N.H. 16-8838

of the basket, owing to original poor subdivision of the circumference of the first coil.

SIDE A

Between stripes a and b

- Row 1: A—7. Between rows 1 and 2: B—15.
Row 2: A—7 and 8. Between rows 2 and 3: B—17.
Row 3: A—9. Between rows 3 and 4: B—16.
Row 4: A—8.

Between stripes b and c

- Row 1: A—7. Between rows 1 and 2: B—15.
Row 2: A—7. Between rows 2 and 3: B—15.
Row 3: A—7. Between rows 3 and 4: B—15.
Row 4: A—7.

Between stripes c and d

- Row 1: A—7. Between rows 1 and 2: B—15.
Row 2: A—7. Between rows 2 and 3: B—15.
Row 3: A—7. Between rows 3 and 4: B—15.
Row 4: A—7.

Between stripes d and e

- Row 1: A—9. Between rows 1 and 2: B—17.
Row 2: A—9. Between rows 2 and 3: B—17.
Row 3: A—9. Between rows 3 and 4: B—17.
Row 4: A—9.

SIDE B

The grouping of the stripes on the surface of this side is asymmetrical, being shifted over too far to the left.

Between stripes a and b

Row 1: A—6. Between rows 1 and 2: B—14.
 Row 2: A—6. Between rows 2 and 3: B—14.
 Row 3: A—6. Between rows 3 and 4: B—14.
 Row 4: A—6.

Between stripes b and c

Row 1: A—8. Between rows 1 and 2: B—16.
 Row 2: A—8. Between rows 2 and 3: B—16.
 Row 3: A—8. Between rows 3 and 4: B—16.
 Row 4: A—8.

SIDE C

Between stripes a and b

Row 1: A—7. Between rows 1 and 2: B—15.
 Row 2: A—7. Between rows 2 and 3: B—15.
 Row 3: A—7. Between rows 3 and 4: B—15.
 Row 4: A—7.

Between stripes b and c

Row 1: A—7. Between rows 1 and 2: B—15.
 Row 2: A—7. Between rows 2 and 3: B—15.
 Row 3: A—7. Between rows 3 and 4: B—15.
 Row 4: A—7

Between stripes c and d

Row 1: A—7. Between rows 1 and 2: B—15.
 Row 2: A—7. Between rows 2 and 3: B—15.
 Row 3: A—7. Between rows 3 and 4: B—15.
 Row 4: A—7.

Between stripes d and e

Row 1: A—8. Between rows 1 and 2: B—16.
 Row 2: A—8. Between rows 2 and 3: B—16.
 Row 3: A—8. Between rows 3 and 4: B—16.
 Row 4: A—8.

SIDE D

The grouping of the stripes on the surface of this side is much closer to symmetry than that of side b.

Between stripes a and b

Row 1: A—7. Between rows 1 and 2: B—15.
 Row 2: A—7. Between rows 2 and 3: B—15.
 Row 3: A—7. Between rows 3 and 4: B—16.
 Row 4: A—8.

Between stripes b and c

Row 1: A—7. Between rows 1 and 2: B—15.
 Row 2: A—7. Between rows 2 and 3: B—15.
 Row 3: A—7. Between rows 3 and 4: B—15.
 Row 4: A—7.

LID PROBLEMS

The lid problems, especially where the designs are carried over from the walls so as to make one complete whole, present some even more difficult situations. We can not but admire the artistic sense of a people who treat a basket as a whole, from the standpoint of design and wall structure, for it will be remembered with what care many of the modern specimens are constructed with flanges on the inside of the orifice to support lids whose edges turn down so as to meet exactly and lie in one plane with the wall coils. Plate 48, *b*, *c*, is a striking example of the ingenuity and craftsmanship as well as of artistic taste sometimes displayed. Figure 88⁵¹ is given here to show the measurements taken by Doctor Haeblerlin which exhibit the great care exercised by the maker during the building of the entire structure. The number of stitches and measurements on the one side are given in Figure 88. On the opposite side the number of stitches from left to right is 4 ($1\frac{1}{4}$ cm.), 16 (5 cm.), 14 (4 cm.), 16 ($4\frac{3}{4}$ cm.), 16 ($4\frac{1}{4}$ cm.), 16 ($4\frac{1}{2}$ cm.), 5 ($1\frac{1}{2}$ cm.). Nevertheless, designs such as vertical

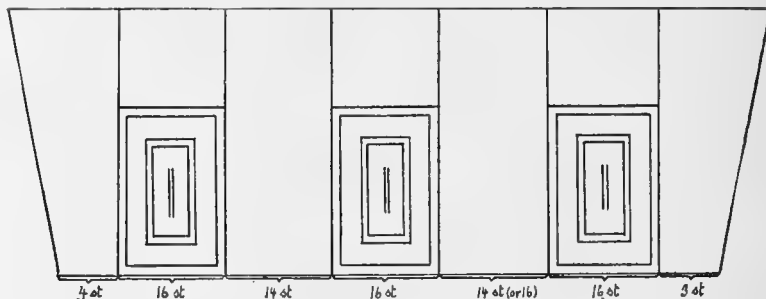


FIG. 88.—Measurements of basket. U.S.N.M. 216420

stripes, which are an excellent means of decorating baskets with trapezoidal faces, are not at all amenable to successful adjustment on oval lids. This is very evident from the basket seen in Plate 48, *b*, *c*. Viewed from the side, the handling of the design is admirable, but, owing to really very slight inaccuracies in circumference subdivision and the leftward lean of the vertical pattern, a difficulty from which the finest craftswoman can not extricate herself without a total change of technique, the lid is anything but satisfactory. We wonder that it appears as well as it does. This is one of the lids that is either worked from the circumference toward the center or else coiled left-handedly. The latter is not probable, since the alignment of the design is so perfect where the lid edge meets the basket.

Plate 48, *a*, is a photograph of a design executed with astonishing accuracy in the face of the almost overwhelming obstacles presented by the technique and with the type of ornamentation chosen. In Plate 35, *e*, we find a much happier selection of design and the product of a very able technician.

⁵¹ The three vertical bands indicate the space of the rectangular patterns on the long sides of the basket.

Several women discussed in detail the construction of a lid similar to that shown on Plate 11, *b*. They agreed that in the first place the structure of the lid was bad, and in consequence it was very difficult to apply the imbrication correctly. They declared that a lid of this shape was no more difficult to construct than any other and the problems it presented were certainly no worse than those encountered in building some sharp-cornered baskets. They considered the design rather inappropriate for a lid of this shape, as it would also be for a more circular flat surface, because it was very difficult to adjust. The maker was criticized as not having spaced her design properly in the beginning. Her imbrication points at different angles at the corners (i. e., not at an equal number of degrees at each corner), because the coil stitches have been permitted to vary in their relative positions. They did not believe that this had been caused by holding the lid in a different position from that usually maintained by the average worker. They criticized that the coils had been stitched together in the same way as when making a bottom; and that little care had been taken to place each stitch correctly at the corners, as must be done when making an imbricated lid. All these errors resulted in an asymmetrical design. They explained that in turning a sharp corner the stitches must spread

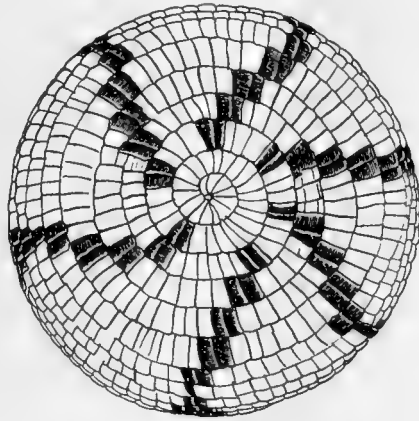


FIG. 89.—Decorated lid

at the outer edge of the coil and at the same time overlap on the inner edge, and evidently any carelessness in placing them would affect the position of the whole design. In bottoms which are not imbricated slight inaccuracies are not of such importance.

Other lids are given in Figure 89 and Plates 11, 12, 14, 35, 36, 41, 42, 45, 48, 49, 50, and 51. It is only comparatively recently that the women have undertaken such difficult artistic and technical problems as those shown in the illustrations just discussed. The former decorations were largely beading, not only for the parallel-coiled lids shown here but for the watch-spring and elongated coils as well. Lids like that given in Plate 50, *c*, *a* (= 56, *a*), while not presenting any complicated artistic problem, display very well the technical genius of the builder, who by means of carefully graded parallel coils constructed a lid which in appearance is exactly like the hump tops of our old-fashioned trunks. The piece of imbricated work shown in Plate 50, *f*, is not a lid but the inside bottom of a tub-shaped basket,

one of the rare examples found. It is unique in that it shows imbrication on parallel coils. Plate 51 gives some odd new shapes and two classic Lillooet forms, beautifully made, from which a Thompson form was evidently taken (pl. 51, *m*).

Lastly, the trays in Plates 52, 53, and 54, presenting some of the problems encountered in oval elongated coiled lids, disclose the fact that a few women are not able to space properly even on shapes the whole surface of which may be seen at one glance, while others produce almost perfect specimens.

The examples here discussed show that various ways of meeting the difficulties encountered in the adaptation of designs have been devised and that different degrees of aptitude are found not only among different women but often combined in the same person. An otherwise extremely accurate technician proves at fault in spacing her designs properly around the circumference of the coil (pl. 15, *c*; fig. 87). A woman with excellent artistic ideas who spaces very well indeed is often confused in the lesser design rhythms into which she subdivides her larger conceptions (fig. 81). Another one above the average in all these respects may be poor at regulating the size of her coils and aligning them with each other, so that her basket structure is bumpy even while her stitching and decoration are exceptional. Sometimes we find that those who have committed blunders have cleverly sought to cover them up or to turn them to their advantage in a way which was entirely unpremeditated. And now and then we find that satisfying person, the all-around genius, whose beautiful specimens of handiwork are perfect, both from a technical and artistic point of view. The most striking peculiarity of design arrangement consists in the lack of feeling for unity of motifs exhibited in the use of incongruous fillers.

THE SELECTION OF THE DESIGN

The individual woman plays no small part in the establishment of the basketry style of her tribe, especially if a certain degree of liberty is allowed her to follow her own inclinations, and this seems to be the case in the Thompson region. The women are not restricted in their selection of designs but make any number; most of them from time to time undertake patterns with which they have previously been unacquainted; others invent variations of old elements which they have used before, and some do both. During a woman's lifetime certain designs and variations may perhaps be considered to belong to her in a sense that they are her particular inventions, but knowledge concerning origins is soon lost by the majority, especially after the designs have been copied or changed by others. Only in the minds of a few people like old Kalia, who once lived at Spuzzum,

but has been dead for many years, are such historical details cherished and remembered. She was a famous basket and blanket maker, who wrought many classic designs. The only variations she ever attempted were those which came to her in dreams. She was an authority on designs, their names, and history.

A new design or variation is readily copied, if easy to make, especially if it is attractive. Probably in this way many have become the common property of everyone, are made everywhere, and undoubtedly are now quite old. With these are generally associated the greatest number of variations since they are constantly being changed in some minor detail, but not enough to render them unrecognizable. This dynamic condition has probably always existed more or less. Occasionally it happens that they are so distorted or blended with foreign elements that their names, meanings, and origins have become uncertain, or are totally lost. On the other hand, some patterns are rare, having fallen almost completely into disuse because they have proved unsuitable or unpopular, while others are known only within limited areas. The young people have formed quite different tastes from their elders, and their attitude has had not a little bearing on the character of designs chosen. It is said they have conceived a dislike for certain forms of bead, dentalia, and tree patterns, which in consequence are rarely selected for decorative purposes at the present day.

There are a few designs which are inherited, but not as property or because they were invented by ancestors. They are taught to the daughters by the mother or grandmother and thus handed down. In some cases an old design may be retained in one family without really belonging there, having been forgotten by others who once employed it, or having been brought from a distance.

Occasionally a young woman will use an ancient design which has been taught her, but which her friends have never happened to see. Old women, however, will often recognize it at once as having been popular when they were young. There are probably many cases like that of two informants, Nos. 33 and 34,⁵² who are good neighbors and friends and who copy each other's designs to a very considerable extent. They often agree to make the same pattern on baskets on which they happen to be working at the same time. They try to employ only the most striking figures because these always attract more attention and assist in a ready sale. They also work together in trying out new patterns or creating novel variations of old ones, but usually they do not invent anything very original. Such an achievement is indeed rare. These two women

⁵² See p. 453.

have made baskets ever since their girlhood, a few each year. No. 34 puts letters on her baskets, which she has learned from the whites, such as the initials of names, and to these she sometimes adds the date of the year in which the work was completed.

Not many patterns have been the result of dreams, but those which are so regarded are claimed to have been clearly and accurately presented in the dream. It is thought that they come from the supernatural powers. Usually a woman's friends do not copy her dream design, even if she gives her permission to do so, but if it is a nice design, sooner or later some one sees it on a basket, perhaps a stranger, and copies it, and after that it is soon taken up generally. The dreamer makes no effort to prevent her ideas being copied, but some old dream designs are never duplicated because of their peculiarity and failure to appeal to the people. Even the woman who receives a vision of such a nature usually has the same opinion about it that her neighbors express, and seldom reproduces it. Old women sometimes teach their dream designs to their daughters or grandchildren, who treat them as they would any other old design, and neighbors who know their origin and have hitherto refrained will then more readily copy them after the granddaughter or daughter has had the first opportunity. It was explained that this was because between the dreamer and her basket design an intimate supernatural relation existed which became weaker if members of the family formed connecting links. This was because the power, although belonging to the dreamer personally and not connected with her relatives, was not as liable to do them such harm as might be brought upon an outsider.

It was not known whether or not her husband's or male relatives' dreams were ever portrayed by a woman on her baskets, but it was stated that they were often painted on a girl's clothing or on tipis. Guardian spirits are all personal or individual, each differing from the other even though designated by the same name. There are no special guardians who are considered particularly potent where basketry designs are concerned. The designs themselves are all that are supposed to be seen in a dream and no two of those observed are alike.

No. 25 offered a bit of information as to her personal experience in regard to dreams of this nature. She said that formerly they were very common, but the patterns so obtained were merely variations in form or arrangement of those already well known. She said that occasionally she had had very vivid impressions of designs in her dreams and that in every case she saw them on baskets in different stages of completion. Never but once were they associated with anything but baskets, and some, she thought, were very nice to look at; they either resembled those already known to her, or more rarely

were quite new. In all cases they were very complicated, or difficult to execute (a good example of how the creative instinct was hampered by the technique). For this reason she never made any of them, although in some instances she remembered them for a long time. With these visions there was never any description, no one presented the designs, and no one spoke. Other women, however, sometimes had encounters in their dreams. No. 25 never experienced this but once, when she saw the only design she ever dreamed about, which was not on a basket. In this case it was a blanket design shown her by a woman she had known who had long been dead. The woman asked her if she could make it, and she responded that she might try if her eyesight were better. But the design was hard and she never attempted it, although she often thought she would. Her eyes became worse and she had to abandon the plan.

The objects seen in a dream are pictured more or less realistically and serve to commemorate or record the event. If the dream is very striking or unusual it is sometimes represented on the first basket which the woman makes afterwards. Such pictures are used only once. Generally they are not easy to produce, nor are they capable of being so adapted to the space offered as to be employed for design purposes, even were their significance of general interest. When making baskets for shamans or other men, designs which are symbolic of their guardian spirits are frequently made according to directions given by the prospective owners, but the maker may be left free to exercise her choice of arrangement because it is conceded that she is then better able to balance the figures after the fashion in vogue on ordinary baskets. If the exact details are left to the woman she usually produces a much superior piece of work.

Each woman probably makes a large number of designs,⁵³ and all the informants expressed opinions regarding their combination with one another, stating that some can be united more artistically than others. They are by no means agreed on this point in every case, although generally a pleasing combination is not a subject of much concern; on the contrary, patterns are often put together without much thought, except when they can not be made to fit.

A number of women agreed that triangles or half arrowheads, meaning right-angled triangles, combined well with diamonds, especially if the former surrounded the latter so that their oblique sides were parallel (fig. 90, *a*), and that the equilateral or isosceles triangle called arrowhead might be artistically combined with two converging lines (fig. 90, *b*). Small crosses or stars, groups of short parallel lines, dots, small squares (rectangles?), triangles, and diamonds were considered useful for combination with larger figures when forming designs where it seemed advisable to create centers

⁵³ See appendix, pp. 431 et seq., for lists of informants and the designs they have made.

for large surfaces or fillers for undecorated spaces. Angles or chevrons were especially attractive to them as outlines for parts of diamonds or triangles (fig. 90, *c*) and the T figure for filling in the space between two diamonds (fig. 90, *d*). They expressed a liking for barred effects on rectangles and squares and also for groups of lines arranged at right angles to each other (fig. 90, *e*). Diagonal lines as borders for step figures or horizontal lines inclosing zigzags or opposed triangles, and combinations of zigzags and triangles they considered very pleasing (fig. 91). Notches, checks, or small crosses as a means of subdividing the surfaces of large figures were also very popular, as may be seen from a survey of the photographs.

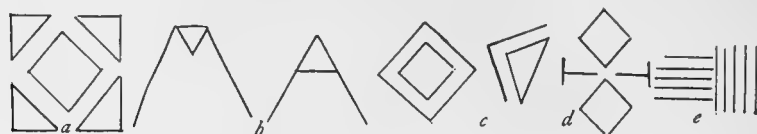


FIG. 90.—Combinations of designs

The women also possessed quite pronounced dislikes, especially in regard to color combinations, feeling that red and black spaces should be separated by a white line or by bare background. They disapproved of designs having a crowded appearance as well as of those which seemed too scattered and bare, their reasons being that in the former case the figures would not show to advantage, while in the latter the basket would look, as they expressed it, too weak.

Two informants argued that the designs pictured in Sketches 49, 50, 54, 84, 153, 154, 237, 348, 415, 419, 421, 512, 539-543, 582, 682, 691, 740, 818, 821, 824, 834, 837, 838, and 842 were not suitable for baskets, some being too plain, others lacking good outlines.



FIG. 91.—Combinations of designs

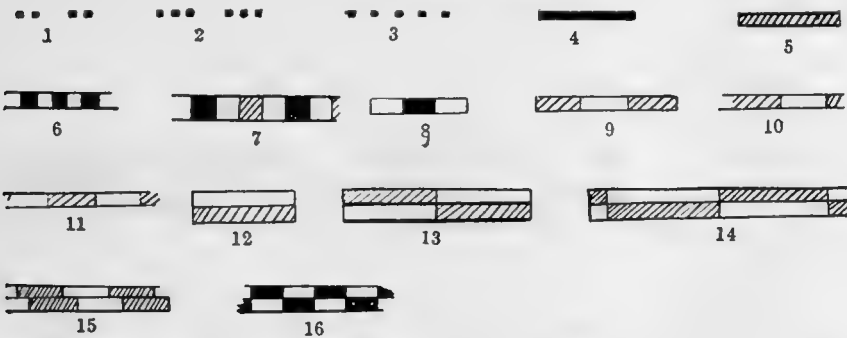
Unfortunately Mr. Teit did not specify which faults belonged to which sketches or whether their lack of fitness applied only to certain forms of baskets or to all of them. Any designs which appeared unfinished or were unsymmetrical were deemed undesirable for basketry ornamentation.

GEOMETRIC FORMS AND THEIR INTERPRETATIONS

To return to purely geometric elements, the important question presents itself as to how these may be interpreted. Are there many very divergent ideas centered in and around the same geometric forms or are the meanings given more or less related? What are the forms, if any, which are given only one interpretation? If many are associated with the figure, what is their range of variability and

how is it influenced by the position of the figure, its arrangement in series, or its surface treatment? These are some of the questions to which an answer will be attempted.

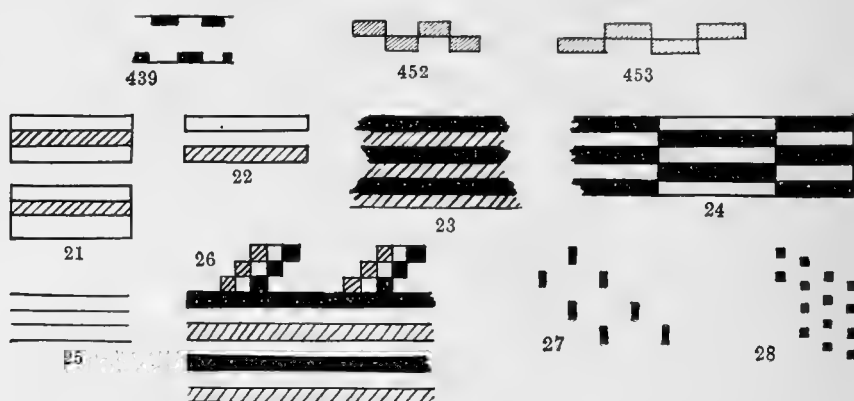
*The horizontal line.*⁵⁴—If the horizontal line is not continuous but composed of small dots, it is known as beads (sketches 1, 2, and 3). If single, continuous and plain, it may be called cloud extended or striped snake (sketches 4 and 5). When divided into very short sections by alternating colors generally forming small squares it is variously termed hair ribbon, spot design, string of beads, necklace, snakeskin, nose-rod, fly, flying bird or insect, simply because it calls to mind any of these objects (sketches 6 and 7). The connotation "fly" is not so readily apparent until it is understood that the Utā'mqt name any combination of small checks or squares "flies." If the line is cut into long sections of alternating colors, it is called



cloud extended, embroidery design—probably because such lines were produced in old embroidery work—necklace, string of beads, nose-rod, dentalium shells, flying bird or insect, hair ribbon, or dragon fly (sketches 8, 9, 10, and 11). Thicker lines may be divided throughout their length horizontally (sketch 12), and are then known as clouds, dentalia or embroidery designs. If in addition to the horizontal division the line is cut vertically at intervals resulting in two rows of blocks of alternating colors beside the meanings given, we have rattlesnake, necklace and string of beads (sketches 13, 14, and 15). The long blocks seem to be especially connected in the people's minds with dentalia which they use in great amounts for decorations of all kinds. Smaller blocks obtained by the same manner of subdivision are more frequently interpreted as snake, bullsnake, or rattlesnake, or they may represent the entirely unassociated hair ribbon (sketch 16). More than two horizontal "layers" necessitating a quite thick and sometimes short line are termed hairy cater-

⁵⁴ The following does not agree in all details with the explanations to Plates 78-94, but the differences are trifling. Mr. Teit collected the sketches at one time and wrote the explanations at another, so that neither list is quite complete. I have not made them uniform because the differences may in part be intentional.—F. B.

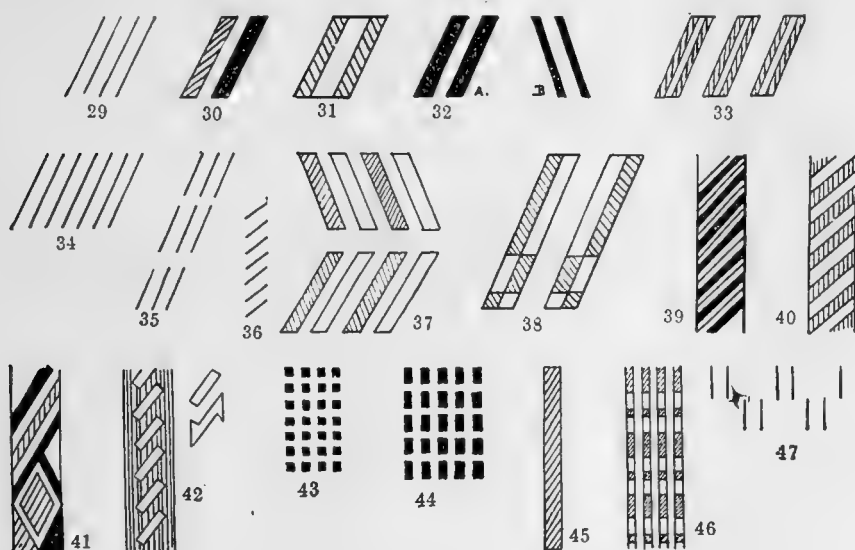
pillar, or dentalia (sketch 21). Three or more horizontal lines or layers are usually considered as the snake design (sketches 22, 23, and 24), although when lacking the subdivision into blocks they are sometimes called scratch, stripe (25), or legging (26), especially the latter if "beads" accompany them such as are represented in the sketch by the small checks. As soon as we touch upon horizontal lines which are combined in any way with other figures, complications arise which make generalizing an extremely difficult matter. Horizontal lines with rectangles attached here and there (sketch 439) are, however, given the same type of interpretation, namely, necklace and snake, while those which are not strictly horizontal lines, yet which on account of the alternating arrangement of figures in series resemble them (sketches 452 and 453), are again found to be clouds, notches, caterpillar, and flying geese. It will be seen that the horizontal line is named after only a small number of objects which



on account of their form and frequent appearance or use are constantly kept in mind and therefore readily suggest themselves. The group includes among natural phenomena low-lying, long clouds; among artificial objects, hair ribbons, necklaces, strings of beads, nose-rods, embroidery and legging designs, scratches, stripes; and among living objects, insects, birds, and reptiles which by their shape are particularly suggestive.

The diagonal line.—Diagonal lines usually appear in series. The single diagonal is very rare, because only one would give a very "bare" appearance to the basket wall, as the women would say. Dots or short vertical lines arranged in all-over, vertical, or diagonal order are known as rain (sketches 27 and 28). Plain diagonal lines are known as rainbow, stripe, scratch, leaning, lines extending out if they are of any length (sketches 29 and 32). Very rarely they are known as little ladder when in pairs. This is a name given

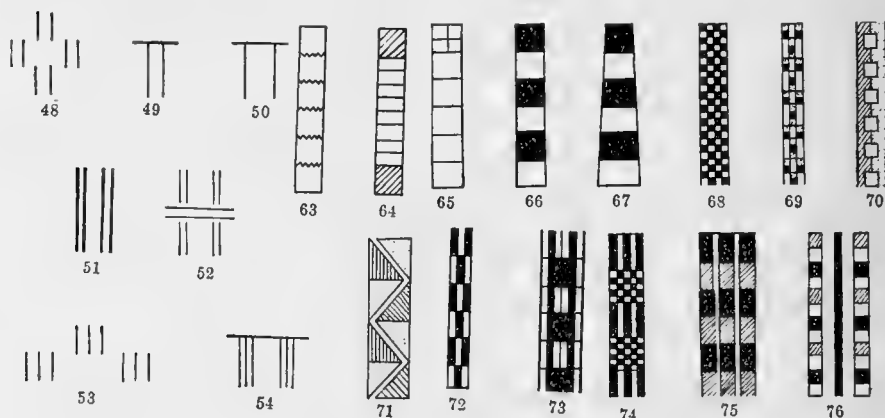
because of the resemblance they bear to small ladders constructed of two poles, which young boys use in climbing, twining their legs around them and pulling themselves up by the hands. Occasionally they are called striped snake (sketch 33). Short parallel lines arranged in groups are called rain design (sketch 35). In a vertical column or in converging series they are *xanaxa'in*, an unidentified edible root (sketches 36 and 37). Wider diagonal lines divided lengthwise are called striped snake (sketch 38). Vertical stripes are also ornamented with the diagonal line (sketches 39 to 42). These are interpreted as "twisted," or *dentalia*, and sometimes as half arrowhead.



For the diagonal line the list of meanings is confined to a few objects also. Among the natural phenomena suggested are the rainbow and rain, among artificial objects there are stripe, scratch, leaning lines extending out, and little ladder, while of living objects the snake is the only one represented, and that is comparatively rare.

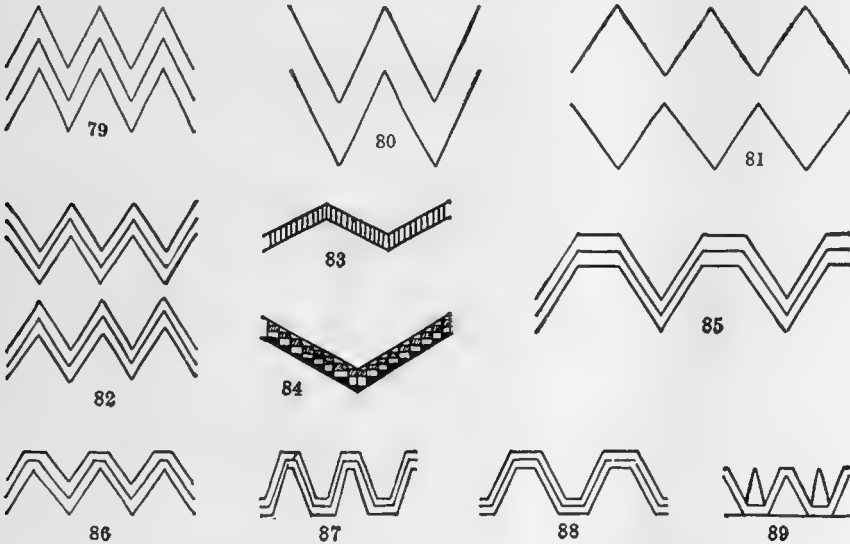
The vertical line.—The vertical line in dotted formation and in parallel series is called rain, spot or bead (sketches 43 and 44). The single continuous vertical line has practically the same interpretations as the horizontal, namely woodworm, snake, caterpillar, or hair ribbon. The unnatural position of any of these objects as implied in the design does not seem to have occurred to the people, or at any rate to have made any difference. Series of verticals cut up into sections by changes in color are also known as rain, but again as beads, *dentalia*, spots, or necklaces. Sketch 46 illustrates these. Short double vertical lines are practically always interpreted as leg-

ging designs, no matter how they are arranged (sketches 47 to 52). Rarely, however, when capped by a horizontal line they are said to represent the small frame erected by adolescent girls on which to hang the miniature baskets and similar articles that they have made (sketch 50). Short triple lines are called false legging patterns (sketches 53 and 54). All-over combinations of double or triple vertical and horizontal lines are known as dentalia and embroidery. Long treble verticals are aptly termed stripe, scratch, or lines extending out. Wide lines divided lengthwise are again known as snakes, while those cut up crosswise into squares are snake, worm, caterpillar, hair ribbon, or white man's ladder (sketches 63 to 67). Checker vertical stripes, aside from being called flies, are snakes, beads, and necklaces. Those cut up in other ways are also given the same interpretation or are more rarely called rain (sketches 68 to 76). Any other narrow vertical effect, such as is achieved by a vertical row of small triangles or diamonds (sketches 297, 302, pl. 84; 524, pl. 88), seems to be considered in the same class as the vertical line and is given a similar interpretation.



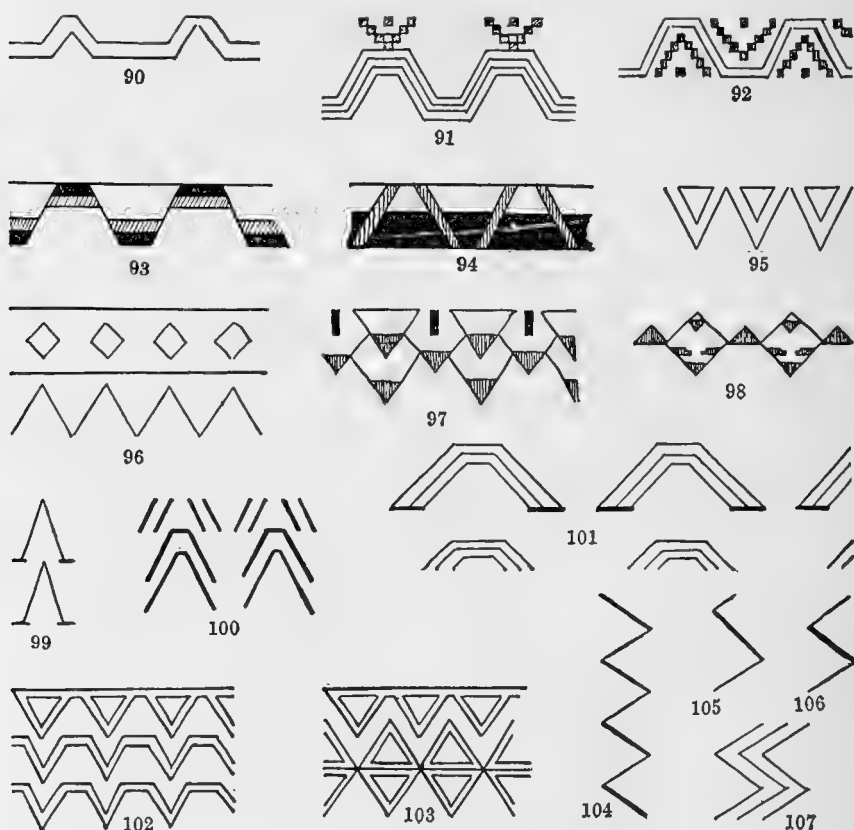
It will be seen that all lines, horizontal, diagonal, and vertical, are interpreted as certain classes of objects according to their width, surface treatment, or combination with other lines, and that on the whole the direction of the lines has little to do with their meaning, although horizontal lines are not interpreted as rain. Small isolated single lines are scratches; grouped lines are leggings and rain. Single broad lines elaborately subdivided are most frequently snakes, worms, or flies (if checker), although the hair ribbon, ladder, bead, and other interpretations are given nearly as often. There is not a single interpretation offered that is not suggested by the resemblance of the lines to objects noted all the time by the people in their everyday life. The variety of terms given merely emphasizes the fact that the lines are after all not pictures or reduced realistic art, but only suggest objects which in a general way they resemble.

The zigzag.—As has previously been intimated, there are two distinct forms of zigzags, that composed of diagonal lines, arranged in horizontal or vertical series, and that composed of horizontal and vertical lines necessarily arranged diagonally. Of these the former are by far the most numerous. Horizontally arranged, especially when combined in some way with triangles, a single-line zigzag is most frequently called a necklace (sketch 77, pl. 79). Double or triple lines of this character are called snake, snake track, mountain tops, zigzag, caterpillar, or rarely the pack-strap design, since some form of this zigzag was usually taken for the decoration of the pack-strap. Sketches 79 and 80 show these figures. When double zigzags are arranged so that the inner points touch and the space between the lines is a series of diamonds they are regarded as more typical pack-



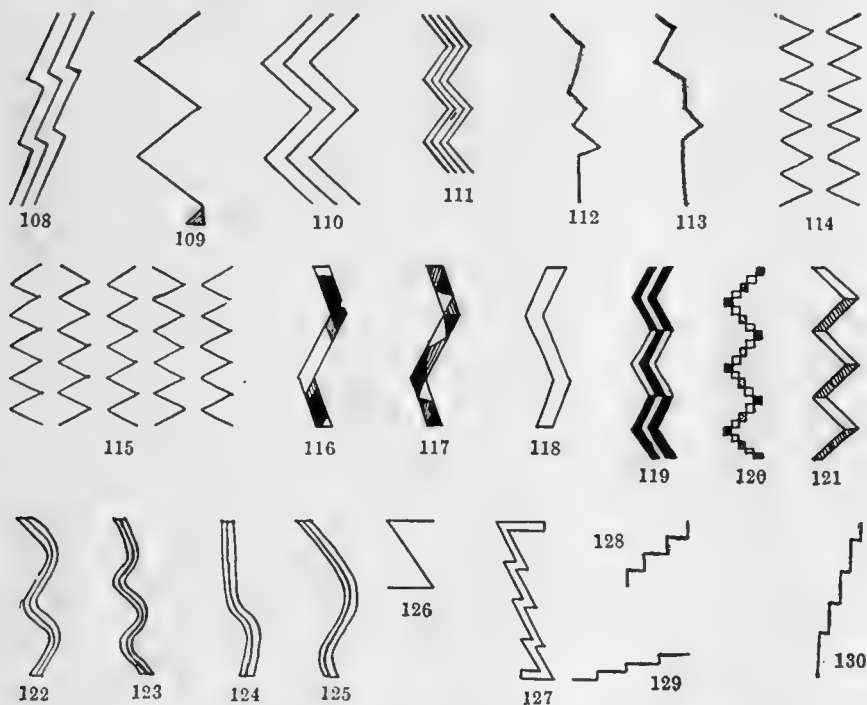
strap designs, and are then described as having connected points or open middles. In addition to the usual interpretations of snake track, etc., such lines, particularly if there are many of them, are interpreted as "rainbow connected" and necklace (sketches 81 and 82). The wide zigzag line (sketches 83 and 84), having a subdivided surface is usually called a snake design, occasionally necklace. A number of variants of this type of zigzag (85 to 88), in which some or all of the points are truncated, are given the following names: zigzag with flat points, half circles connected, going back and forth in half circles, mountain, cloud, rainbow, deer-fence, and embroidery. Only rarely are they termed snake tracks or part of a gravebox pattern. The exact name chosen for these figures on any particular occasion depends largely on the nature and disposition of accompany-

ing small figures, or on the color treatment of the intervening spaces. The combination of truncated with nontruncated zigzags usually receives the name mountains (sketches 89 and 90). The step figures in squares seen in sketches 91 and 92 cause this pattern to be likened to a rainbow and clouds, clouds over mountains, a necklace and pendants, or to embroidery. The forms shown in sketches 93 and 94 are Nicola patterns, called clouds. The simple element, the trapezoid in various arrangements, is also designated in the same



way (sketches 577 and 578, pl. 89). Sketch 95, called "deer fence with snares," and sketch 96, designated as an Indian fortress, may be placed with these zigzags or may belong to the class of highly conventionalized realistic designs. With designs of this character, the composition as well as interpretation of which is more or less complicated, it is difficult to make a distinction. Sketches 99 to 101 are parts of these zigzag designs and are interpreted like other zigzags. Sketches 102 and 103 are often called arrow point designs because of the presence of the triangles.

As in the case of straight lines, the zigzags composed of short diagonals are given on the whole the same interpretations without regard to their vertical or horizontal position. A number of new names make their appearance with the vertical zigzag, however, which are not applied to horizontal forms. The terms for horizontal arrangements, but used also for those in vertical position, are snake and snake track, caterpillar—especially where broad single diagonal lines with subdivided surfaces are used—as well as trail, pack strap, and contracted middle. New terms for vertical arrangements are ascending zigzag (sketch 104), blanket, parflèche, wave, lightning,

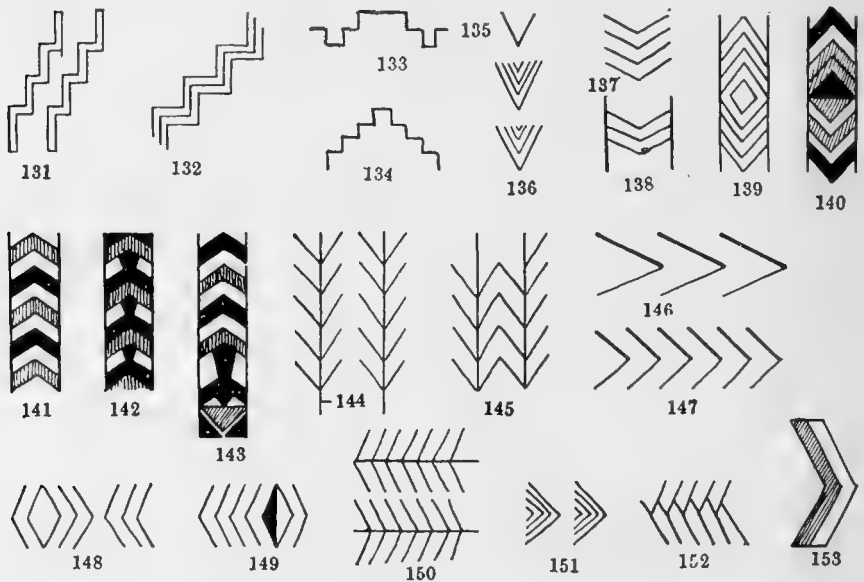


and grasshopper or grasshopper leg, depending on the character of the lines. Sketch 105, giving the simplest form, is known by the last two names. The wave patterns classified by the Indians according to the number of angles in the line as of one, two, or three turns, etc., may be seen in sketches 106 to 110. The blanket pattern (sketch 111), is always of several lines in close formation. The lightning is an irregular zigzag (sketches 112, 113), which is also known as grasshopper, or as woodworm borings. Sketches 114 to 121 are given terms similar to those applied to horizontal arrangements. All less exact forms of the vertical zigzag which it may be contended are attempts at realistic representation, such as 122 to 125, are called striped snake. Sketches 126 and 127 of zigzags composed of diagonal

and horizontal sections are very rare. No interpretation has been found for them.

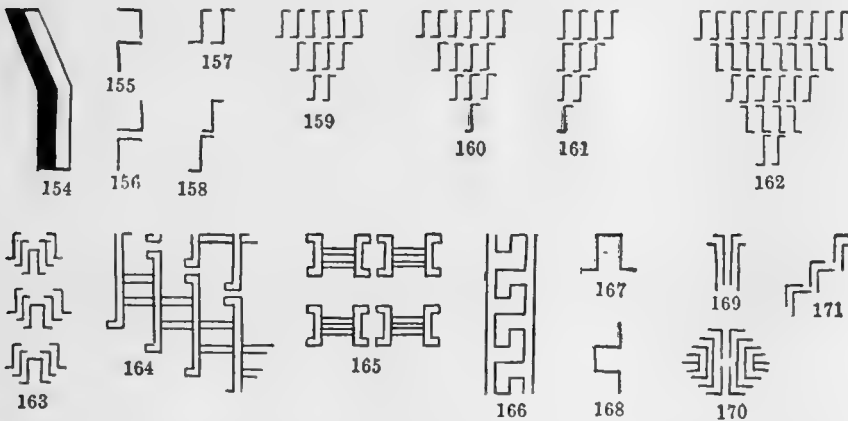
In spite of their different derivation, zigzags composed of vertical and horizontal sections, whether narrow or broad, are invariably given the common interpretations of snake track, worm, grasshopper, or occasionally lightning (sketches 128 to 131). No name could be found for a zigzag of three lines in close formation, such as is shown in sketch 132. The pyramid zigzag (sketches 133, 134) is more often considered as a mountain or necklace pattern, but it may be called simply zigzag. Rarely it is thought to be a caterpillar.

The chevron.—The chevron, point down, is called arrowpoint, angle, or butterfly wing (sketches 135 to 137). The last figure is



sometimes termed necklace or broken middle. In vertical arrangement inclosed by parallel lines, whether turning up or down, whether broad or narrow, plain or accompanied by an enlargement at the apex into a "knob" figure, the interpretation given is arrowpoint or arrowhead. Sketches 138 to 143 illustrate these designs. Chevrons connected by a vertical line passing through their points when turned upward are naturally known as trees or branches (sketches 144, 145). Lying sidewise they become wave or simply angle, or part of the zigzag; in series they are waves of one turn, bent leg, broken back, grasshopper, or ribs, and as such may be facing all one way or in two series, away from each other (sketches 146 to 148). Facing each other (sketch 149) they have been interpreted as angles or arrowpoints. Connected by horizontal lines passing through

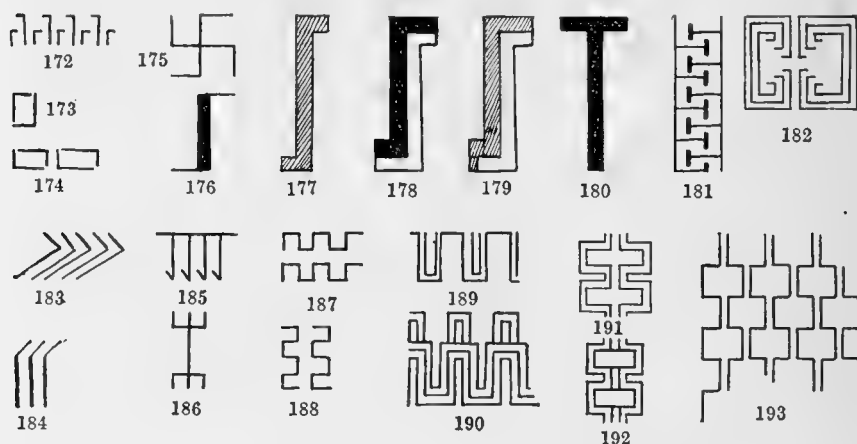
their points they form the fish-backbone pattern as it is sometimes made around Spuzzum. This is a fairly common design in general art but appears very rarely on baskets (sketch 150). Chevrons, in concentric formation (shown in sketch 151), turned sidewise or upward, are called butterflies or butterfly wings. There is a peculiar arrangement of chevrons that may be described as "slipped past" (sketch 152). This is given a great variety of names, such as broken back, bent leg, fishhook, hook, hooked end, cross, head, and root-digger. The last three are undoubtedly bestowed because of the recognition of the T form, which is treated under the section immediately following dealing with the right angle with one long side. The derivation of this figure is doubtful. It is an excellent representation of the braided rim as it appears on some baskets and it is very odd that it does not seem to have been so considered. Possibly this



has been due to the fact that braided rims are not common except among the Klickitat, and to the circumstance that the women who were familiar with such rims may not have been consulted as to the meaning of the pattern. Broad chevrons divided lengthwise are usually called bent back, leg, or middle, although the names rainbow half or striped snake are sometimes applied (sketches 153, 154).

The right angle with one long side.—The right angle; and occasionally the obtuse angle, with one long side, is almost universally known as the leg or foot design, although in serial or all-over arrangement it sometimes becomes bent back, caterpillar, grasshopper, or hook. Very little distinction seems to be made between the simple right angle and the Z figure, except that the former is more often termed foot, and the latter bent knee or leg (sketches 155 to 163). The result of the junction of the two Z figures gives the beginning of the meander as seen in sketches 167 and 168, although for these no interpretation has been noted. Standing upright they are probably

regarded as two legs. The key design in sketch 166 is very interesting (cf. sketches 197 and 198, p. 316). The foot elements, facing in opposite directions, as in sketch 169, are called hooks, feet, or grasshoppers, and from this arrangement may be traced very clearly the relation to sketch 170, which is also a typical Klickitat and California pattern. Sketches 171 and 172 to 175 give different arrangements. The last is especially interesting because it is the well-known swastika. Its explanation here as caterpillars crossed is instructive as illustrating the often humble interpretation of highly artistic motifs for which a deep symbolic significance is claimed. In sketch 176 the central shaft is thickened. The name caterpillar still remains. Sketches 177 to 179 show the broadening of the whole figure which retains the old interpretations, but in 179 the whole has become so broad that it is sometimes known as a duck. There may be other derivations of this figure, as indeed there probably are for a great



number which have only been discussed from one point of view (sketches 471 and 501, pl. 87).

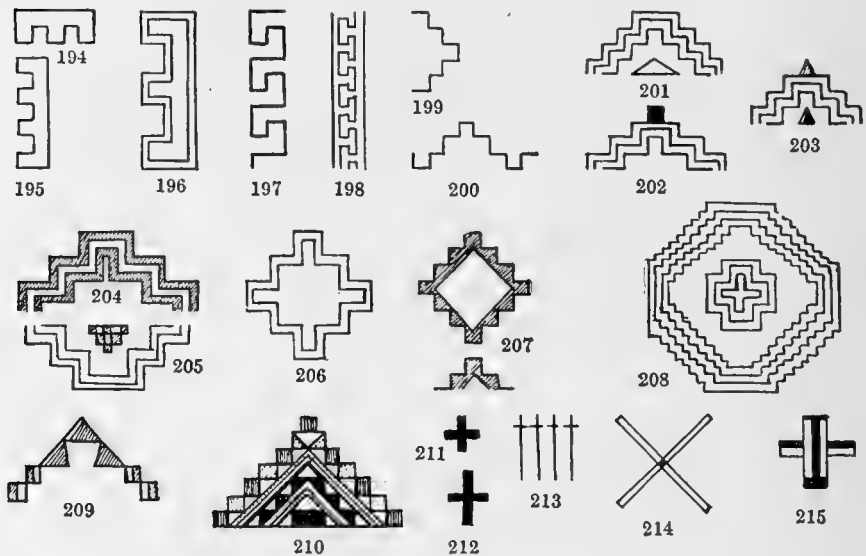
For want of a better classification the T figure shown in sketch 180 may be considered as belonging to the group of right angles with one long side. Formally, it is either a doubling of this figure or an entirely different motif. It is certainly given somewhat different interpretations. Root digger and cross are the two most usual, since it closely resembles both of these objects. It is called head very frequently because it is used so often to represent the heads of men and birds, being one of the nearest approaches to realism in representing this part of the body that is possible in coarse basketry technique. It is also rarely called fishhook, but there is some doubt about the propriety of so designating it. Sketch 181 shows its use in ornamenting a vertical stripe. The elaborate and highly artistic design shown in sketch 182 is known as the leg or foot pattern,

probably merely because of the hooked ends of the lines. In sketch 183 there are "leaning foot" elements which are given the same interpretation as those placed in an erect position, but with the added qualificatory term "leaning." Sketch 184, although the angles of the elements are obtuse, is still called by the terms bent and broken back, leg, or grasshopper, but the name "hook" is not applied, being reserved for figures like sketch 185, where the angle is acute. These two figures do not properly belong to this group on account of their different angles, but since they so closely resemble the right-angled figures and receive practically the same names, and since they are not very common, they have been treated here for convenience sake. Sketch 186 gives an odd trident form called fish spear or bird's foot. There is no doubt that, from the character of interpretations given the chevron and the right angle with one long side, such as grasshopper, broken back, or bent middle, the people sense a vague resemblance between the two. Nevertheless they are more often distinguished by their names than confused, especially since with the latter the one side of the angle is so much shorter than the other. As with all other groups, the variety of names have this in common, that they refer to long, narrow, bent objects or those which are distinguished by such features. The wave is no exception, because its thin broken crest is one of its conspicuous features.

The meander.—The meander or simple key figure is generally called mouth or notch; no distinction is made for its horizontal or vertical arrangement (sketches 187, 188). It is also termed snake or snake track. Even in a more elaborate form, as shown in sketches 189 and 190, or doubled, as in 191, it is always the mouth pattern to those who know design names well. When the inner square figure is entirely closed, as in sketch 192, some people call the resulting pattern a variation of the grave box. A good all-over arrangement is shown in sketch 193. Sketches 194 to 196 (p. 316), showing the meander with a facing along one edge, which consists of a straight line, are aptly given the additional interpretation caterpillar, and more closely resemble the creatures than do most of the other figures so named. Sketches 197 and 198 (p. 316) may be considered as belonging either with this group or with the right-angle group so often called leg or root digger (sketches 172, 180, and 181). They are named caterpillar, snail, and head patterns. Sketch 197 is sometimes specially termed duck's head.

Properly speaking, sketches 199 and 200 (p. 316) show meanders of larger conception, which are also related to step and ladder as well as to checker figures and to the zigzag composed of vertical and horizontal sections. They are designated as zigzags or steps, and are also given the fanciful appellations of mountains, clouds, necklaces, and stepped half circles on account of their shape. Probably because of

their derivation they are also called embroidery designs. Sketches 201 to 205 are elaborations of this form. Sketch 206 shows the motif used as a closed unit. This figure is called star, frequently with the added descriptive phrases "notched," "stepped," or "gnawed all around." Elaborations of this occur in sketches 207 and 208. Two figures which do not properly belong to any of these groups, nor to ladder and step designs, and which are placed here as a matter of convenience, are shown in sketches 209 and 210. They are usually called cloud designs, on account of their general shape; sometimes also mountain. Sketch 209 has been named necklace, and all are considered as embroidery patterns.



CROSSES

Crossed lines may be purely geometric or they may have a realistic significance, if, as is sometimes the case, they are copies of the Christian cross. They are then quite frankly named Christian cross; therefore, although constructed on the same principle as geometric crosses, they have been placed with the realistic designs.

The purely geometric crosses have very few interpretations. They are always known as stars when simple in construction and small, and the arms are usually of equal length. The two plain little crosses shown in sketches 211 and 212 are also given the name of "flying bird" or "insect," and rarely they are called "flies." That shown in sketch 214 is given a secondary interpretation of "fish-line reel," since it resembles the object fairly closely. The elaborated forms of sketches 215 to 217 are more often particularly designated

as "big" or "morning" stars. It seems as if the outlined form (sketch 218) has been derived from 217. Thus simply presented it is known as "star," but the elaborated figure shown in sketch 219 is called "leaf" in the neighborhood of Spuzzum. Sketches 220 and 221 are forms of crosses, but the pronounced center at the intersection of the lines and the radiating effect produced by the supplementary treatment are responsible for their interpretation as representations of the sun. They are quite unusual and are not seen except on circular lids, but they are often painted on pieces of skin.

TRIANGLES

All triangular forms, regardless of the type, are known over the entire region as arrowheads. They may be plain or subdivided into colored sections, and occur singly or in combination with other figures. Although this is the general name in the application of which one could hardly err much, others are often bestowed on designs in which the triangles are subdivided in a peculiar fashion or where



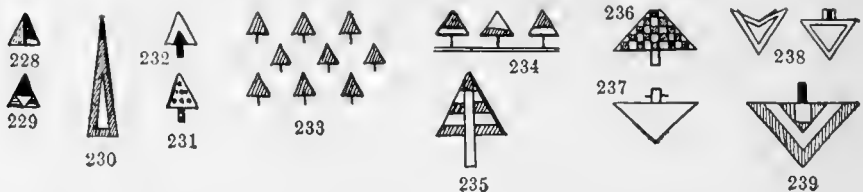
their combination is sufficiently striking to suggest a different connotation. The fact that the triangle is called arrowhead over practically the whole extent of North America may be due to the circumstance that in the world of natural or artificial objects as they appear to the Indian triangular forms are comparatively rare. The arrowhead is an implement of almost world-wide distribution. Its age and its important position in the material culture of the people would be sufficient to connect it with the geometric figure which offers such a striking resemblance to it and to account for the adoption by the Thompson of its name.

Among the most common secondary names referring to natural or artificial objects, insects, plants, etc., are "wing" (either that of a bird or that of an insect, especially the butterfly wing), mountains, clouds, leaves, teeth, snares, and beads. A name which owes its existence solely to the vertical, diagonal, or more rare horizontal arrangement of triangles, or to the diagonal alignment of squares by which figures with stepped or serrated outlines may be secured, is ladder. In this case the element is of no importance except as it lends the stepped outline to the whole design. There are a few

arrangements which are called *parflèche* patterns. Trees, shrubs, and mushrooms are also considered as prototypes for a few designs, and so realistic are these, even while purely geometric, that it is difficult to decide whether they should not be considered as representative forms. They are shown in sketches 234, 235, and 236.

It does not seem necessary to discuss in detail the various numbered sketches of designs in which the triangle is the conspicuous element and to treat in the same fashion all the patterns in which other simple geometric forms occur.

Triangles which are given the name arrowhead are generally plain or surrounded by a broad outline. Further subdivision does occur, however, and in these cases there is no general rule governing the identities of arrowheads and butterflies, for instance, except that the latter are usually more elaborately treated or the subdivision is along the lines of a chevron. Sketches 222 to 225 (pl. 83), 249 and 250 are good examples of the simple arrowhead. The term as applied to those arranged in vertical series pointing up or down or in horizontal succession is usually qualified by proper descriptive phrases such as



"arrowheads touching bases" or "arrowheads entering each other." (See p. 400.)

As a wing the figure is usually more elaborately treated (see sketches 239, 261, 271, 272), although in such patterns as 237 the term butterfly seems to depend upon the arrangement of the elements, or what is still more likely, upon the whim of the interpreter. In sketch 237 the stem and crosspiece of what appears to be an inverted tree represents the head and eyes of the butterfly. Triangles in horizontal series or occurring in connection with horizontal zigzags are usually mountain tops, while in all-over arrangement, as in sketch 244, they are occasionally called clouds. A more frequent interpretation is "arrowheads joined all over." Large triangular masses of design made up of small elements are apt to be interpreted as clouds. Triangles called leaves or teeth are usually distributed along both sides of horizontal lines. Sketches 262-267 are examples of patterns which are likely to receive either of these meanings. Elements representing snares do not differ much from those interpreted as mountains, except that the apices of the triangles are usually turned down. Triangles which are appended to the points of zigzags,

or angles of these zigzags which are filled in in color so that they appear to be triangles, are always termed beads in connection with the zigzag which is interpreted as the necklace.

The ladder designs as evolved from combinations of triangles are of two general types. The one type is composed of single or double vertical or horizontal series of right-angled triangles (see sketches 278-280; 287-296, p. 320); the other is the result of building right-angled triangles along an oblique line so that the hypotenuse of each

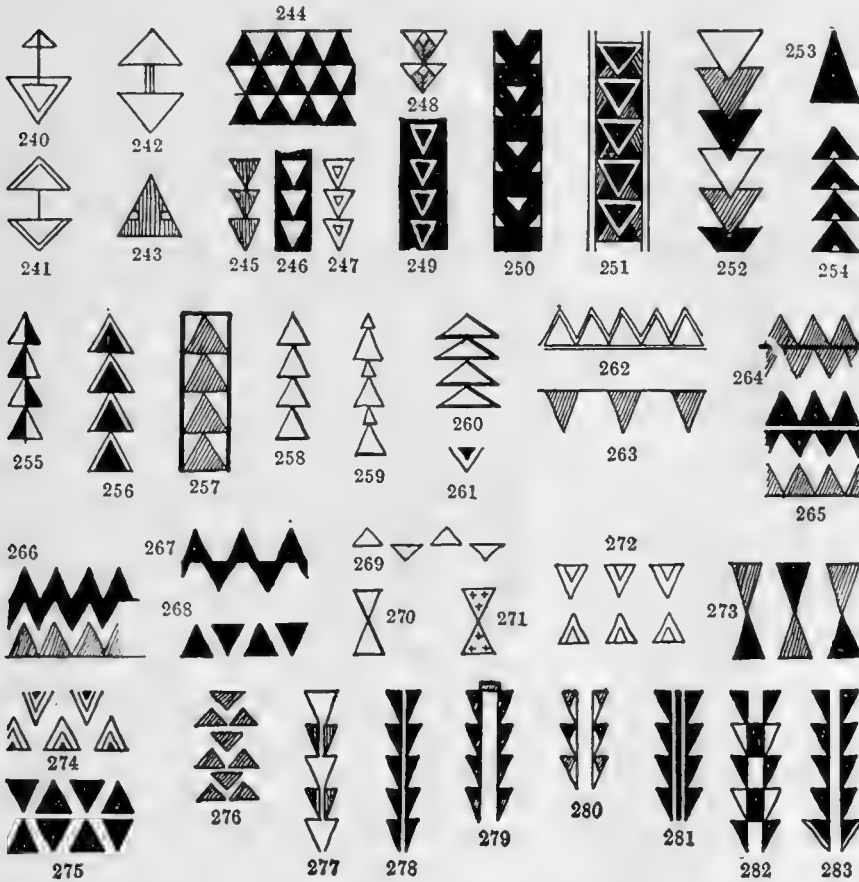
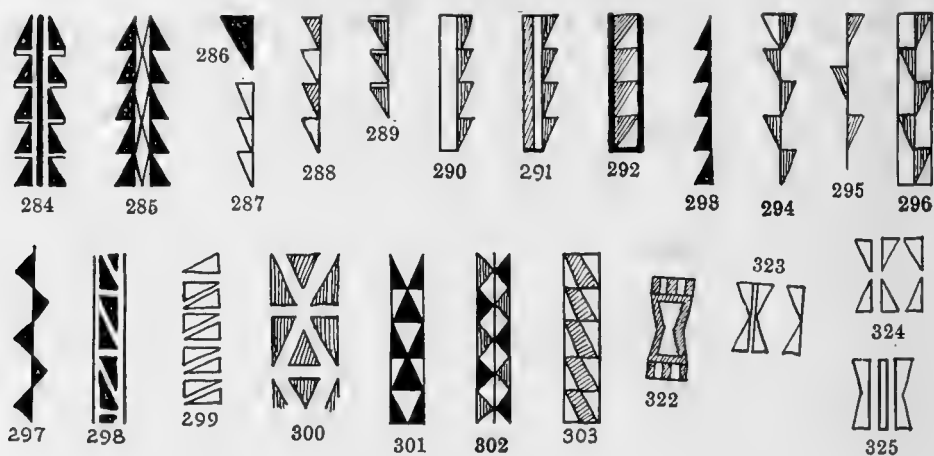


figure is one with the line (see sketch 316, pl. 84). The former type of ladder was probably so called from its resemblance to the notched logs used for this purpose. No distinction is made if the whole design lies in a horizontal direction or is inverted. The right-angled triangle, whether single or in series, is also practically always called half-arrowhead. As a simple element it does not appear to be recognized as a triangle in itself, but always as half of a fuller figure, such as an isosceles or obtuse angled triangle. The single right-

angled triangle occurs rather infrequently. Sketch 305 (pl. 84) is one of a few examples. Here, on account of the treatment of the surface, the figure is known as a butterfly wing. The usual arrangement is that of a vertical series in which all the triangles are facing in one direction with the longer cathetus forming a straight line. From these circumstances it seems probable that the derivation of the half-arrowhead may have originated in either of two ways, or that both may have been in part responsible. One was the splitting of the vertical series of full arrowheads lengthwise, as may be seen in sketch 278 (p. 319), the other the automatic production of half-arrowhead series as reverse patterns for series of full triangles on a vertical strip, as may be noted in sketch 257 (p. 319).

There is even a third possibility which is illustrated in sketch 303. Here the same variety of arrowheads is produced as the reverse pattern for the series of rhomboids in a vertical stripe. The series



on either side of the stripe point in opposite directions, however. This does not happen in reverses of triangles. Although rhomboids on the whole are rather uncommon, it is advisable to consider them as the main design here since they occupy the center of the strip. That half-arrowhead series are not necessarily used in pairs may be seen in the sketches 287-293. The relation of 293 to 292 shows how the presence of vertical outlines at once produces a reverse. Sketches 294-297 give some rarer forms which are interpreted as tree ladders, with notches or short limbs all around the log. Such a ladder was used for scaling cliffs and was probably placed upright. There are a number of odd arrangements such as are shown in sketches 298-302. Parflèche patterns are shown in sketches 322-325. It is not improbable that the whole idea of placing triangles on top of each other in this manner was taken over by the Thompson from Plains art, although they seem to have preferred using triangles which are all of

one size. Such designs as sketch 259 (p. 319) and such obtuse triangles as those in sketch 260 (p. 319) are unusual in Salish art. Some undoubted *parflèche* derivations are numbers 270 (p. 319) and 323-325; and 326, 327 on Plate 84. One characteristic Plains feature is the junction of the apices of two opposed triangles until the figure has become a full or half hourglass.

In summing up the position of the triangle in Salish art it may be said that it is perhaps the most common figure, if we except the check, which can hardly be called a square. It differs from the other geometric figures so far discussed in possessing one general name, together with comparatively few secondary terms which, while quite unrelated in regard to one another as representing a variety of objects, are fairly definitely controlled by one of three conditions—serial position, surface treatment, or supplementary combinations; and are apparently a little less open to whimsical interpretation than lines and angles. Considering its comparatively rare appearance as an isolated complete element, this fact is very striking.

In regard to the general term arrowhead, it can not be argued that the figure is always considered as a representation of the object for which it is named. Rather the contrary, for the people themselves say it is merely a general designation. The presence of secondary names associated so clearly with quite definite treatment of the element confirms this statement. Other connotations than those given above sometimes occur, especially in connection with triangles in vertical stripes. These are hair ribbon, snake, caterpillar, etc., and seem to refer entirely to the broad bands elaborately subdivided rather than to the conspicuous element which decorates them. There are a number of triangles with more or less supplementary treatment. It is difficult to decide whether they should be assigned to geometric or realistic art. Such are sketches 322 and 338-341 (pl. 85). Certainly their likeness to the objects for which they are named is very striking, yet on account of the lack of intermediary series showing the process of conventionalization they have been perforce included with the purely geometric forms.

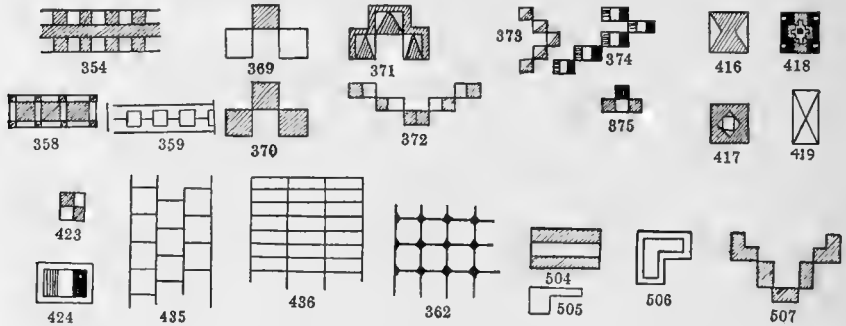
THE SQUARE AND RECTANGLE

If the check were properly included among the squares and rectangles as a design element it might be said that it is the most common one of the simple geometric figures, for designs in checker are exceedingly numerous. It is, however, simply one stitch as a rule and its square form is merely incidental. To just what extent the people recognize its shape as being the same as that of larger squares is not known. There are some instances of square checks composed of two stitches, either of which alone is a rectangle, indicating at least that the women are accustomed to square checks, and try to keep them uniform in shape; but occasionally oblong checks are used through-

out, instead of squares. There are also small squares composed of four checks, two on one coil and two on another, but these are not numerous.

The checks are always interpreted in the aggregate by the Utā'mqt as clusters of flies, by the Nicola as clusters of stars, and by most of the other bands as the Indian rice root if the checks form a large diamond or triangle, and sometimes in the latter case as a cloud. They frequently receive similar interpretations when arranged in droppers or bands, although the most usual are the popular ones already given for designs of this general shape which are cut up into small figures.

No general name was given by Mr. Teit for the square or rectangle, as in the case of triangles. In fact, for many squares as they appear on the newer baskets no names are given at all. Yet it seems impossible that the figure is not recognized by the people sufficiently for them to possess a term for it. Perhaps the most fre-



quent interpretation of squares and rectangles, especially if they are cut up into layers, is bead. This name is applied with equal freedom both to large and small figures. There seems to be some other underlying idea such as necklace or headband, beaded edge, or string of beads, for the arrangement of these elements in series, in rows on horizontal stripes, or joined by a single line through the middle (see sketches 354, 358, 359), is never entirely overlooked. Arrangements of this type are very frequent. Three squares or rectangles (sketches 369-371) arranged pyramid fashion are sometimes called a notch or a cloud. Aligned to form a V, as in sketch 372, they obtain the additional names of "butterfly" or "flying bird." If the V points sideways, as in sketches 373 and 374, the new term caterpillar appears. In diagonal series if the corners of the figures touch each other, the design is generally called "step" or "ladder," although "big bead" and "caterpillar" are terms that also cling. Forming a cross, which usually requires five figures, the design is very commonly called "star," although such interpretations as "buttercup" and "owl's

face" are given by individual bands, the Nicola using the former, the Lytton the latter. The large elaborately subdivided squares (see sketches 417 and 418) are recent introductions and have been called "stars." That shown in sketch 416, however, is given an entirely different set of meanings, the most significant of which is "parflèche." The others are "contracted middle," "arrowhead," and "cloud." Many designs composed of checks or squares are also called embroidery patterns, in addition to the other interpretations offered, indicating that they may have had their origin in quill embroidery.

Single rectangular figures are slightly more common than squares and so, also, are their interpretations as stars (see sketch 424), beads (sketches 423, 424, and 514, p. 325), or moss cakes (sketch 420, pl. 85). Rectangles subdivided into stripes crosswise are often called caterpillars and dentalia. The various combinations of rectangles follow rather closely those of squares, and the interpretations given in most cases are practically the same.

Intersecting lines forming squares in an all-over pattern are sometimes called net design, as in sketch 362, where small diamonds have been introduced at the intersections to represent knots. When rectangles are the result of such crossed lines (sketches 435, 436), the design is frequently called "patch." Notched rectangles such as those pictured in sketches 505-507 do not properly belong to the group but are placed here because they do not fit in elsewhere unless it is with the right angles with one long side, from which it is quite possible that they were derived. Sketches 505 and 506 are called "hand pointing" and "head design" or "duck's head," respectively. The latter name particularly recalls the right angle. The notch in sketch 507 is ignored in the interpretations given, which seem to depend solely on the arrangement of the element. It is called necklace, design on dress, flying bird, or beads.

On the whole, it is quite apparent that the square and rectangle play subordinate parts whenever they occur in basketry designs, unless they are checks. In the minds of the artists, if anything can be inferred from the character of the names or interpretations applied to these figures, the surface treatment or the arrangement controls the characterization. While the square and rectangle are recognized separately as beads, dentalia, stars, etc., according to their subdivision, their combination into different groups, forming bands or "necklaces" or "clusters," is the important factor when several are concerned. It does not seem that any clear distinction is drawn between the square and rectangle as elements, either in the names employed or in the treatment of the figures in designs. For nearly every design constructed with squares there is a corresponding one composed of rectangles, interpreted in practically the same way.

THE DIAMOND

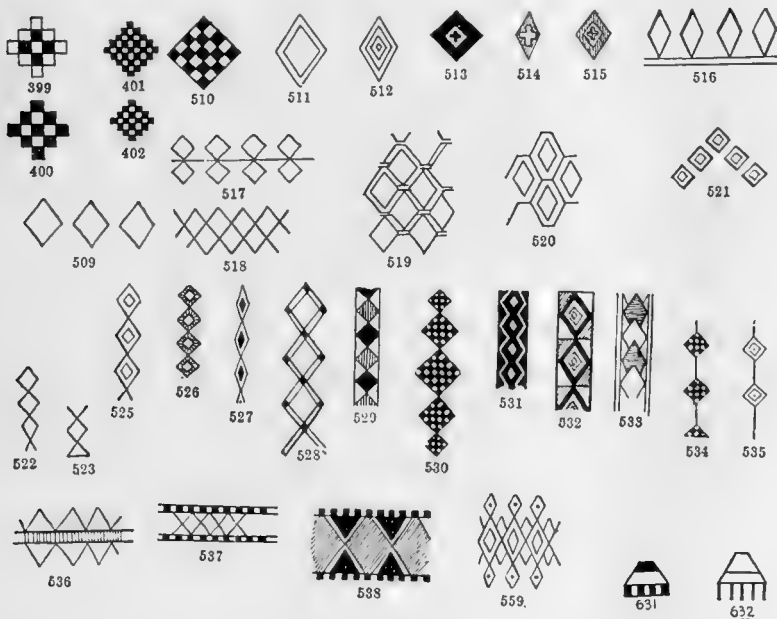
Judging from the types of interpretations given to diamonds which are the result of entwined or opposed zigzags, or intersecting diagonal lines and those given to the separate figures, it seems that more range of fancy is allowed in the former case than in the latter, but that as usual the general design or the arrangement of the elements composing it is largely responsible for the choice of name which has been made.

Large detached diamonds are interpreted according to their surface treatment, or their alignment with one another, but in either case there are several possibilities in the way of names, the selection of which must depend more or less upon the whim of the basket maker. Outlined or plain solid figures receive such names as spearhead, lake, leaf, snare, and mesh. Of these the first two are seldom noted when the figure occurs in combination with other geometric elements and it seems, therefore, that they may be considered more properly as general terms. Another quite rare interpretation is wasp's nest (sketch 509). The diamonds thus named are perhaps broader than usual. If the diamond is composed of checks the general name is Indian rice root. The Utā'mqt, however, apply their favorite name for checkerwork, "clusters of flies," and the Nicola "clusters of stars" (sketches 510 and 399-402).

For the frequent diamonds with double outline, or surface subdivided into a number of diamonds one within the other, the most frequent terms are "eye" or "star," although "snare" and "mesh" are also given (sketches 511, 512). Sketches 513-515 show very common forms called "star." It seems that any cross, square, or diamond-shaped figure, if small enough and about equal in both diameters, is known as a "star," especially if the surface treatment is at all elaborate. Although single diamonds are called leaves or meshes, the former name is more properly applied, perhaps, to a series which are arranged along a horizontal line, as in sketches 516 and 517, while a mesh figure is properly part of a net design such as is shown either in 518 or 519 and 520. The diamond called "snare" seems rightfully to be a part of a more complicated pattern in which the zigzag occurs, either actually or as an idea carried out in the arrangement of the diamonds (sketches 521, 559, 566; 567, p. 326).

There are a great number of patterns composed of these elements arranged in a vertical series, connected at the upper and lower points, and a variety of interpretations accompany them which do not appear to conform to any general rule. The old familiar names, caterpillar, woodworm, and snake, are encountered, which do much to strengthen the suspicion that these are applied purely on account of the arrangements which remind the people of these creatures and have little or nothing to do with the elements themselves. On the

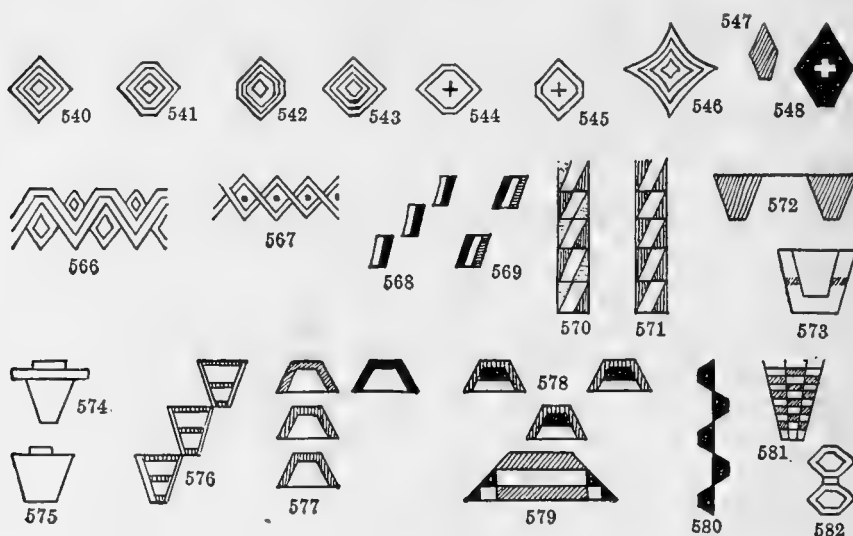
other hand there is a new set of names introduced which owe their application entirely to the nature of the element. These are "eye contracting," "big head," "arrowhead," and "snake." A study of sketches 522 to 535, together with their accompanying interpretations, will make this point clear. In the series 536-538 the first and third are called bear's foot, although this is only one of three names for sketch 536. Sketch 537, however, has four names, necklace, embroidery, snake, and net, but necklace is the only term it shares with sketch 536. It is instructive to compare these with sketches 631 and 632, whose names are "bear's foot" and "comb." Evidently



the triangles and the checks along the horizontal line are the determining factor here in the assignment of meanings, but even so, there is no general rule; rather, vague resemblances often influence the interpreter to reach conclusions which others would regard as unsatisfactory. Distorted or truncated concentric diamonds such as those pictured in sketches 540 to 546 (p. 326) are flowers or stars. To truncated forms in general are ascribed a great variety of meanings, chief among which are arrowhead and leaf. The crosshatching in sketch 549 (pl. 89) is responsible for this figure being known as a beaver's tail.

THE RHOMBOID

As a separate figure, the rhomboid is not especially common. Sketches 568 and 569 show its ordinary arrangement, and its surface treatment which causes it to be called a "big bead," "dentalium," "hairy caterpillar," or even a "spot." Sketches 303 (p. 320), 570, and 571 are most commonly called "arrowhead" and "dentalia." Evidently the name arrowhead refers to the half arrowheads along the edge, and dentalia to the rhomboids. Other names such as "necklace" and "embroidery" refer to the pattern as a whole. The name "xanaxa'in" is applied to both. Occasionally the rhomboid is called a "spearhead," probably because of its acute angles.



THE TRAPEZOID

Trapezoidal figures, not necessarily to be regarded as truncated triangles or imperfect squares, are very rare and have been designated chiefly as representations of the moss cake (*tšenêka*), and teeth or butterfly wings. Their assignment either to realistic or geometric art seems quite arbitrary, in spite of their likeness to the objects whose names they bear, inasmuch as they are lacking in the usual embellishments which distinguish realistic work, and are likewise perfectly geometric in their composition. (Sketches 572-575.)

The derivation of the designs seen in sketches 577 and 578, interpreted as "clouds," is known to have developed from those given in sketches 93 and 94 (p. 310).

The trapezoids in Sketch 580 may have arisen from a mistake in the creation of the lowest one, or from a miscalculation in the drawing of a pattern of triangles, the oblique lines not slanting sharply enough for the width of the stripe. Such speculation is only permissible when the rare occurrence of the figure is considered together with its appearance in such an unusual position. The design is called "bead," "beaded edge," or "caterpillar," the first two on account of the elements involved, the third because of the general arrangement. The trapezoids in Sketch 576 are unusual. On account of their subdivision into layers, they are named "dentalia," but the whole pattern is a ladder because of the diagonal alignment of the elements and the stepped edge. Design 581 is known as one of several varieties of snake. Its roughly trapezoidal form is undoubtedly the result of radiating lines, therefore it is probably not intended to be a real trapezoid. Its assignment to this group is merely for convenience.

THE HEXAGON AND OCTAGON

The hexagon and the octagon are comparatively rare figures.⁵⁵ Hexagons are occasionally noted as the second or third outlines of diamonds forming meshes of net patterns and may even be seen surrounding single figures (see Sketches 541 and 542). There is little doubt that they are related to truncated diamonds. It is quite probable that their historic development in this region came from this direction, for solid hexagons or those indicated by a single outline are never seen, at least on basketry, although their delineation is as feasible as that of the other figures habitually used. The hexagons appearing in series doubly outlined and connected are shown in Sketches 582 and 583. They are commonly known as grave-box patterns, although a number of informants have stated that the octagon is the real grave-box design (*lukaist*) and that hexagons and squares employed for this purpose are merely variations or "false designs." To the figure shown in Sketch 582 is attributed several other interpretations, such as snare and circle; oddly enough, it is also described as being half of design 584.

The octagonal forms 584 to 587 are all called grave-box patterns, but owing to the connection of the figures in 586, not by actual contact of the sides, but by the double line serving as a string, it is sometimes called "big bead" or "necklace," while the central dots in the figures shown in 587 may account for the name "eye" which is sometimes heard. The large single octagons shown in 588 and 589 are interpreted primarily as the full moon, but it can easily be seen why such terms as "circle," "snare," and "part of grave box" are given to the former, although just how such a description as "half horizontal of a zigzag or meander" came to be associated with it is not clear.

⁵⁵ Sketches 582-589, pl. 89.

REMARKS ON INTERPRETATIONS OF GEOMETRIC DESIGNS

Before leaving the subject of design interpretations it may be well to summarize briefly the results obtained from the study and to compare these with the data which have been obtained from the people themselves on this point.

It has been found that there are no geometric figures which possess only one interpretation, although most of them are more generally known by one rather widely used name which seems to have been given partly because of the general shape of the element, partly because of some rather common form of subdivision, or exclusively for one or the other of these reasons. Combinations of figures, including small designs, vertical stripes, and horizontal bands, are also variously designated, even when identical in composition. Their names depend upon their general form, surface pattern, or arrangement as parts of larger groups.

The most interesting geometric figure is the triangle, with its common name arrowhead. A frequent interpretation for the square or rectangle is big bead, if the figure is large, or fly if it is small and considered in the aggregate. The rectangle is also very commonly called a dentalium. The hexagon and the octagon are known as the grave box, while the cross with arms and stem of equal length is usually interpreted as a star. Lines are given many interpretations which apparently cover many divergent ideas. Nevertheless all are connected with long, slender objects, the choice of name in the case of wide bands being controlled less by the general shape of the band as a whole than by the particular character of the subsidiary treatment of the surface. And in a general way this is true of all the figures.

As an example we find associated with lines such apparently diverse objects as snakes, hair ribbons, rain, necklaces, and beads; a little reflection, however, enlightens us and we see that the first four objects present in common the striking feature of exaggerated length compared to width, while in the last instance the subdivision into blocks suggests the form of beads used in necklaces or embroidery. So the qualified names rattlesnake and garter snake are prompted by certain brilliantly contrasted and clearly defined subdivisions of the band, which suggest the markings of these two snakes. Thus the association of designs with different objects and the expression of the association by bestowing on them the name of the object which each is thought to resemble goes back to two causes, the suggestion of resemblance due to general shape and that due to the elements in composition. Either of these may at times be entirely overlooked in favor of the other, depending upon which makes its appeal most strongly to the individual rendering the decision, or both may be taken into consideration.

If a woman's attention is called to the fact that several interpretations have been given to a design by others, and she is well informed on basketry in general, she frequently answers that the other names are also applicable, but that she knows the design chiefly by the name she has given it. According to Mr. Teit, there are a number of families among the upper Thompson who know only a few designs by name. When discussing others, they describe them in common geometrical terms.

Of the two conditions, general shape, or surface treatment, the former is more frequently the determining factor in the perception of resemblances. It accounts for the general character of associations, and hence for the majority of names chosen. The surface treatment is more largely responsible for determining the names of particular surface patterns, regardless of the form of the design.

The Thompson possess a general term for basketry designs: *ntcotcūāistten*, "thing worked on the surface." (*n*, on; *ten* thing. In compounds the suffix variously written *-āist*, *-āst* or *-est* SURFACE is employed in the sense of "pattern." *Tcotcū'* or *tcetcū'* means "worked," "variegated," and "ornamented," and is applied to embroidery or any similar decoration on almost any object, especially if it is wrought in colors.)

Nicola informants say that they have two sorts of names for designs, the one applying to designs as a whole and the other to the parts which compose them. In addition a third term is applied to indicate the arrangement of the design on the basket. All of these may be used and indeed it is sometimes necessary for the sake of clearness that the three be given together. For example, a pattern may be called a star, because of its four-sided symmetrical form, but it may also be called spot, bead, or arrowhead because of the little figures composing it. If several "stars" appear on the basket, the qualifying phrase "connected up and down" may be required to indicate the method of arrangement.

There are very many of these descriptive phrases. For instance, Sketch 402 is called "Indian rice (mula) design three around;" Sketches 399 and 400 are "Indian rice design two around," referring to the number of rows around the central check. If the checks are larger or smaller than the average they are called big or little, while if they are not true squares they are described as "wide," "narrow," "high," etc. The list of Indian terms for design arrangements with the equivalent English expressions will serve to indicate how definite the people are in their characterizations. (See p. 400.)

The question has been asked, "How definite an impression can one woman give to another of the exact pattern she intends to place upon her basket by means of the terminology at her command?" In answer to this it may be said that in the first place there are cer-

tain names for designs of general character which are at least for any given region well understood by all the people, probably men included. Everyone knows what a snake, mouth, hammer, or any other such pattern is, if the individual be at all informed about the art of basketry. As has been explained before, the general term may be modified by any number of descriptive phrases and terms, by means of which a perfectly definite impression may be gained. There are probably some designs the mere names of which settle the character of the arrangement at once, but these are probably not numerous. So many variations have been introduced from time to time that now such old, well-known names as snake, necklace, bead, dentalia, fly, etc., suggest many possibilities in the way of minor differences which must be specified by the addition of descriptive terms, and these the people are perfectly well able to supply in almost infinite quantity and shades of meaning; in fact, so many are they that no attempt has been made to collect all of them.

DESIGNS WHICH ARE EITHER GEOMETRIC OR REALISTIC

In glancing over the sketches of figures which have been classified as strongly conventionalized and probably originally realistic, 621 to 784 (pl. 90-93), the reader will note several which are practically duplicated in the table of geometric patterns. In these cases the derivation is extremely doubtful and it seemed best to represent the same forms in both classes. It can not safely be contended that because in each case the pattern bears a name identical with a term for a realistic figure which these designs closely resemble, the more conventionalized forms are necessarily modified realistic representations. The resemblance between a purely geometric pattern and the accurate picture of an object may at times be sufficiently noticeable to evoke the same response from every individual to whom it may be shown, and thus account for a general term being prevalent over the entire region where such an object is known.

The same conditions control the application of names to conventionalized patterns as with the geometric figures. Probably general shape is here more important, since, if it were ignored, even a similar surface appearance would in most instances be insufficient to suggest the objects.

A study of the sketches will make more intelligible the difference in character between the two sets.

REALISTIC DESIGNS

The realistic designs speak for themselves. They are rarely given more than one interpretation and when this occurs the second term is usually merely an elaboration of the first, perhaps making the explanation a little clearer. They are nothing more than pictures.

While the outline is here all important it does not mean that the figures are necessarily executed merely in outline. It may seem that some of the sketches belong more properly with the strongly conventionalized group, or at least that there are as good arguments for this classification as for the one which has been made. It must be admitted that this is true, but at the same time it must be remembered that even realistic patterns are necessarily stiff and angular in basketry work, a fact which detracts from their realistic character. These sketches, 785 to 859, are as near realistic representations as are to be found in all the designs. Not all that are made are shown in this group; a number of others appear to good advantage in the photographs. Others may occur, for realistic designs are never standardized and probably seldom exactly duplicated; therefore they are not often generally known to the basket makers as a whole.

OBJECTS REPRESENTED BY DIFFERENT FIGURES

Having discussed the geometric figure and its interpretation as a representation of various objects it is highly interesting and instructive to look at the matter from the opposite point of view, namely, to study the representation of the object by means of different geometric forms. This frequently occurs where objects bearing the same name may be of quite different shapes, such as beads, clouds, designs for dresses, or embroidery patterns, flowers, houses, leaves, necklaces, and *parflèche* patterns which have been copied in basketry. But there are also other objects which in their general outline do not vary among individuals of the class, but which are nevertheless represented by means of entirely different geometric forms. The alphabetical list on pages 463 to 472 contains a large number of design names with reference to the illustrations on Plates 78 to 94 and to the photographic reproductions of baskets. A comparison of the representations proves the lack of a fixed relation between design name and form. Such a comparison strengthens the conclusions already drawn, that in addition to mere shape the important consideration of surface treatment frequently becomes the determining factor in giving the design its name. Objects represented by only a few similar forms are not included in this series.

LYTTON DESIGNS

It has been intimated several times in the course of this book that the people who live around Lytton are particularly ingenious and gifted basket makers. They have originated a number of unusual shapes and seem to have evolved a few designs which are peculiar to themselves, although some of them certainly give evidence of foreign influence.

Figure 92 gives a few which may have been taken from Plains art but which have been used for many years at Lytton. Regarding the "hourglass" figure in *a*, which was seen on a Lytton basket, the maker, who was about 76 years of age, said it was a *tsene'ka* design. She said her mother had always given it this name and that the pattern was very old. Figure 92, *b*, is a variation of *a* and most of the people call it an arrowhead design, but really it is a *tsene'ka* according to the same authority, who sometimes uses it on her baskets. She stated that the points which break the inner triangles were frequently

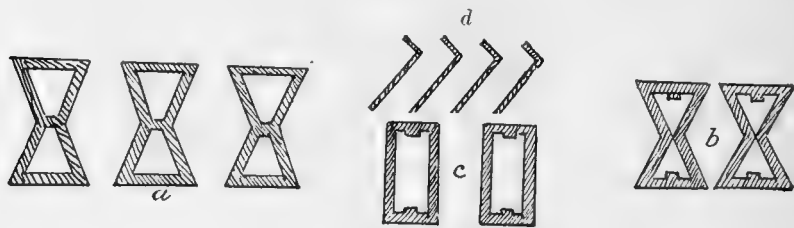


FIG. 92.—Basket designs from Lytton

made longer and sometimes pointed; *c* is still another variation of the same pattern, and it is said that there are others, but these have not been obtained.

The Thompson "leg leaning" design (fig. 92, *d*) was also made by this old woman, who did not know its name, although she was aware that it was very old. The name she had given it was "leaning hook," but she thought it might be part of a necklace pattern, since

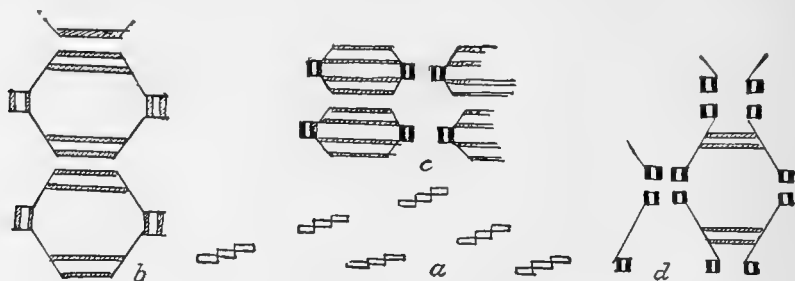


FIG. 93.—Basket designs from Lytton

she had heard some Thompson women give this name to similar patterns.

Another Lytton basket was decorated spirally in all-over fashion with the design shown in Figure 93, *a*. The maker was an elderly woman who did not know the name of the design, although she had used it several times on baskets, changing the colors as she liked. She thought some people called the pattern a variation of the bead design. Her mother and grandmother had used it and the grandmother had said it was a very common old pattern. It was not,

therefore, confined to the family but was made by a number of old women, all of whom agreed with the informant that it was common and old and frequently associated with bead designs. The same informant stated that the fish-backbone pattern (see Sketch 150, pl. 81) was used long ago on basketry but had gone out of fashion.

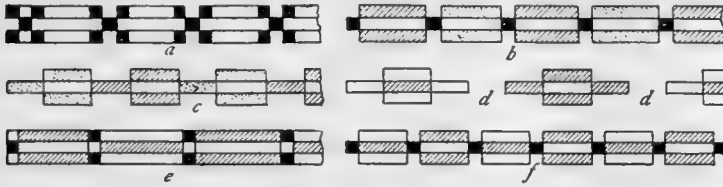


FIG. 94.—Basket designs from Lytton

The patterns *b*, *c*, *d*, also in Figure 93, were old Lytton designs, but *d* is not used nowadays.

Another old woman gave the necklace patterns shown in Figure 94. Now they are sometimes called "chain-and-notch" designs. They were employed not only in basketry but also for embroidery in beads or quills, and the choice of colors was not confined to any definite order.

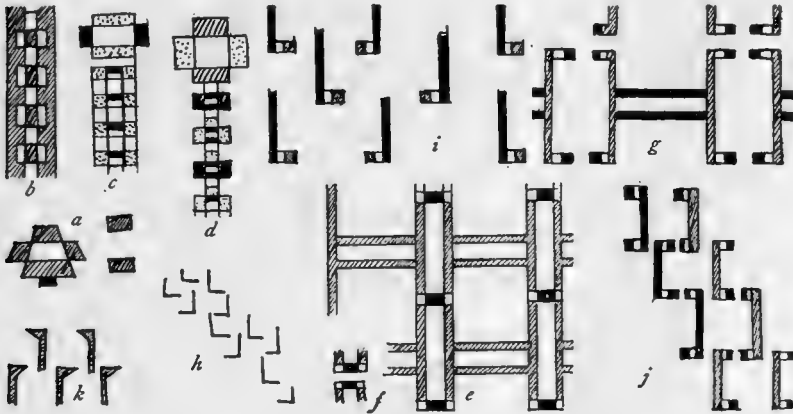


FIG. 95.—Basket designs from Lytton

Of the designs given in Figure 95, *a-e*, *a* and *c* were on a "nut-shaped" basket the maker of which said they were called stars when large and flies when small. Some women omit the large figure at the top.

Those remaining, which are variations of the leg design, were very old embroidery patterns, the meaning of which is unknown to the present generation at least. The variations given here were seen on Lytton baskets and were joined in large connected patterns or, broken into fragments, were scattered over the surface (fig. 95, *f-k*).

Some interesting varieties of the flying-bird design are shown in Figure 96, *a*, *b*, *c*. These were used on baskets in vertical rows. Another basket about 30 years old was profusely decorated with nine different designs in vertical rows. These included *b* and *c* and the remaining seven patterns seen in Figure 96.

In Figure 97 are a number of patterns, some of which are used elsewhere than at Lytton, but in some cases the interpretations given

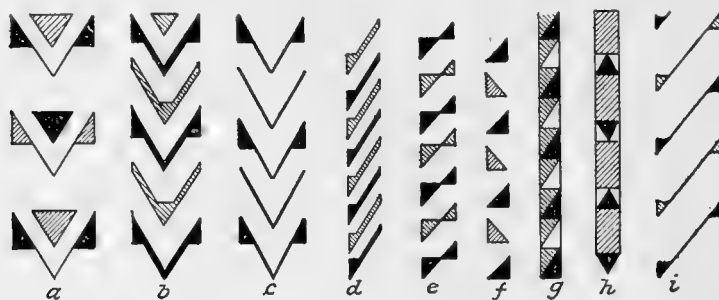


FIG. 96.—Basket designs from Lytton

to them by the Lytton woman were different from those offered by informants from other localities. They are not the only designs which she made. They are given here because her interpretations seem confined to Lytton.

A bit of information about former styles in the application of designs to burden baskets in this region was obtained from this

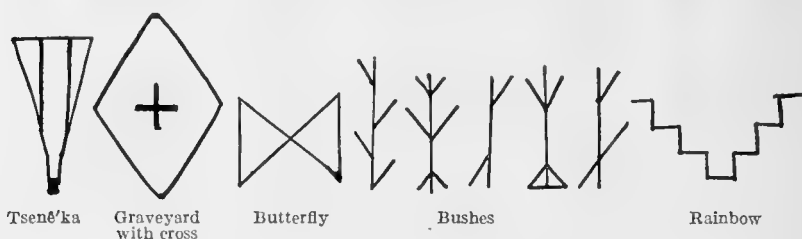


FIG. 97.—Basket designs from Lytton

woman. About half a century ago, around 1870, when she was a young woman, there was a fashion still in vogue of not imbricating the lower portion of the basket walls, but a space about the width of the hand was left bare above the beaded line which defines the limits of the bottom. This type of arrangement had been much more popular at an earlier date. (See pp. 230 et seq.)

The earth-lodge designs in Figure 98 are also from Lytton.

BASKETRY OF THE TRIBES NEIGHBORS OF THE THOMPSON

In order to obtain a clear idea of the setting of Thompson imbricated coiled basketry in that of the whole group who manufactured this ware, as well as to know more definitely of what the group consists, it is necessary to glance at the work of the other tribes. First it is essential to take up a little more specifically the work of the Lillooet (Salishan) and Chilcotin (Athapaskan), whose burden baskets, aside from being their most common shapes, approach more nearly the Thompson forms than do the typical baskets of the other tribes.

It will be remembered that frequent reference has been made to the technique and designs of both of these peoples, but for the sake

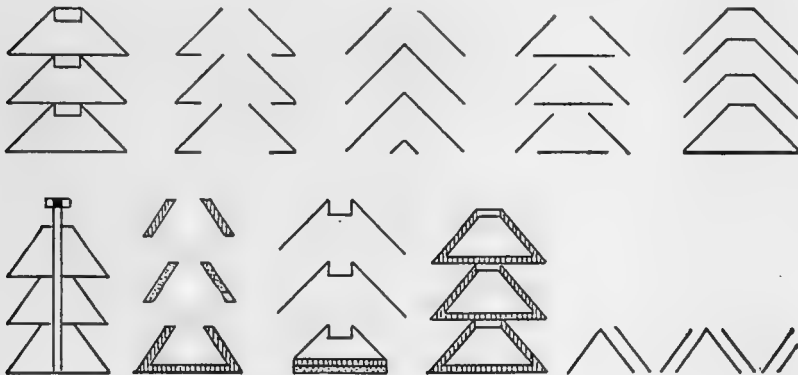


FIG. 98.—Basket designs from Lytton

of clearness a brief recapitulation of their outstanding peculiarities will be given.

LILLOOET BASKETRY

The Lillooet burden basket is more nearly square than that of the Thompson and probably its angularity was established at a much earlier date than that of the Thompson burden basket, if indeed it was not invented there. The corners are quite sharp, the walls perfectly straight and usually much more flaring than those of the Thompson basket, while the comparatively smaller bases give the effect of much less stability. In many cases the coil structure averages about the same as the Thompson; both tribes are excellent builders, whose work could not be improved upon. In a number of forms of baskets and sometimes in the burden types, however, the Lillooet use a broader, flatter coil which is sewed with coarser withes, a feature which the Thompson have not adopted. (Pl. 55, *b*, *d*.) They also are accustomed to make a considerable amount of slat work, especially in baby carriers. While many of their baskets, particularly the long narrow trunk and storage baskets, of which they manufacture

a great number and which the Thompson may have learned to make from them, are adorned with designs applied to the walls in vertical stripes, the ordinary method of application, especially on burden baskets, is in horizontal zones, generally two. The upper of these is entirely imbricated both for background and designs, while the lower contains only short vertical stripes which extend part way into it from the upper field. Occasionally the imbricated field is replaced by one decorated solely with beading, which, however, does not necessarily encircle the four walls of the basket, for the Lillooet are not much disturbed by lack of symmetry. (Pls. 55, *a, c, g*; 57, *c, g*.) They sometimes adorn three sides and leave the fourth bare, or place upon it totally unrelated figures. Or they may treat opposite faces similarly but choose for the pairs designs which have no artistic relationship. While they recognize the value of the filler and make use of it to some extent, they are evidently not as impressed with its desirability as the Thompson.

Plate 55, *h*, shows the introduction of two fillers, one of which comes exactly on the corner, the other on the face. It is possible that these are parts of the design proper.

Plate 56, *b*, shows a very unusual Lillooet specimen with fillers in both upper corners. The peculiar feature of this basket is the bifurcated stitch which is carried throughout as a means of decoration. The Lillooet rarely treat their stitches in this way, a device characteristic of Chilcotin and Shuswap basketry. Although the bifurcation is so carefully done, it has not resulted in more vertical designs, as is the case frequently with the Chilcotin, because the individual stitches show a pronounced leftward lean. Other specimens with fillers are shown in Figure 99 and Plates 55, *e*, and 57, *e*. It is worthy of note that Lillooet fillers are practically always in keeping with some part of the main design, while the Thompson sometimes use totally unrelated elements. Another evidence of a more refined artistic sense is to be found in the more graceful forms. The Lillooet burden basket, although more angular in many cases, with its tapering form and extremely narrow base, is greatly admired by the Thompson women, who strive to imitate it. Some of the other forms shown in Figure 100 and Plates 56, *a*, and 57, *f*, are also very good. The Lillooet do not have as much trouble with the corners as do the Thompson, because they

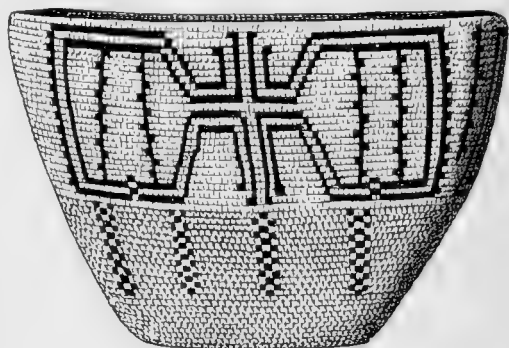


FIG. 99.—Lillooet basket

are less apt to turn them prematurely. On most specimens there is only a slight leftward twist of the walls, which is hardly noticeable. That some Lillooet women have as much trouble as their Thompson neighbors in securing proper circumference spacing is evident in Plates 55, *a*, and 56, *d*, in the droppers in the lower fields.

On the whole the designs are remarkably well arranged, so that one feels that perhaps the division of the decorative field is a little more perfect than among the Thompson. No doubt the improved manipulation of the coils when turning the corners is an influential factor as well as the large, rectangular patterns which are so typically Lillooet. Here the women have secured an excellent type of decoration for the form of basket used. These designs practically fill the field and are very satisfying in their symmetry and form. They are probably also much easier to place than a number of vertical stripes or small figures, since they require merely a single division of the

field into two equal parts. Miscalculation in circumference spacing is chiefly evident in vertical stripes or in the "droppers" which occupy the lower field; and when they do not come in approximately the right

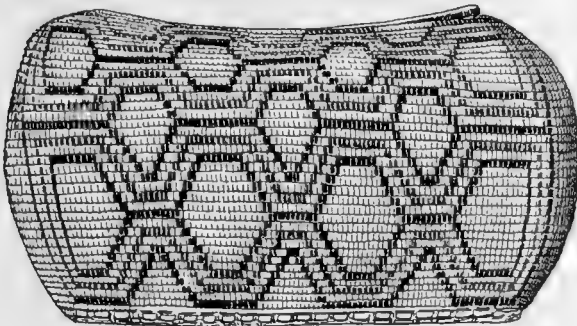


FIG. 100.—Lillooet basket

places in relation to the large rectangular designs the effect is even more noticeable than the incongruity of Thompson fillers. Plates 31, *f*, and 57, *b*, *d*, *h*, show the almost perfect adjustment of the large figures to the upper field, and also the miscalculations in placing the droppers. Doctor Haeberlin has made sketches of one of these baskets in which the upper field is merely beadwork on three of the faces, while on the fourth the "droppers" run to the rim of the basket. (See fig. 101 and note how the woman has begun her beading in the upper corner of the first side as pictured in sketch *c*, in order to fill the gap left by crowding the droppers too far to one side.)

It will be seen that the Lillooet women have not succeeded even as well as most of the Thompson in solving the difficulty of the leftward leaning vertical. They are more successful in horizontal diagonals and flying bird designs or in meanders. (Pls. 55, *f*; 56, *c*; and 57, *c*.)

An interesting example of a Lillooet woman's struggles with the placing of vertical stripes is shown in Plate 43, *c*, *d*. As was the case in one or two Thompson specimens, some of the stripes were widened to fill the gap occasioned by wrong spacing.

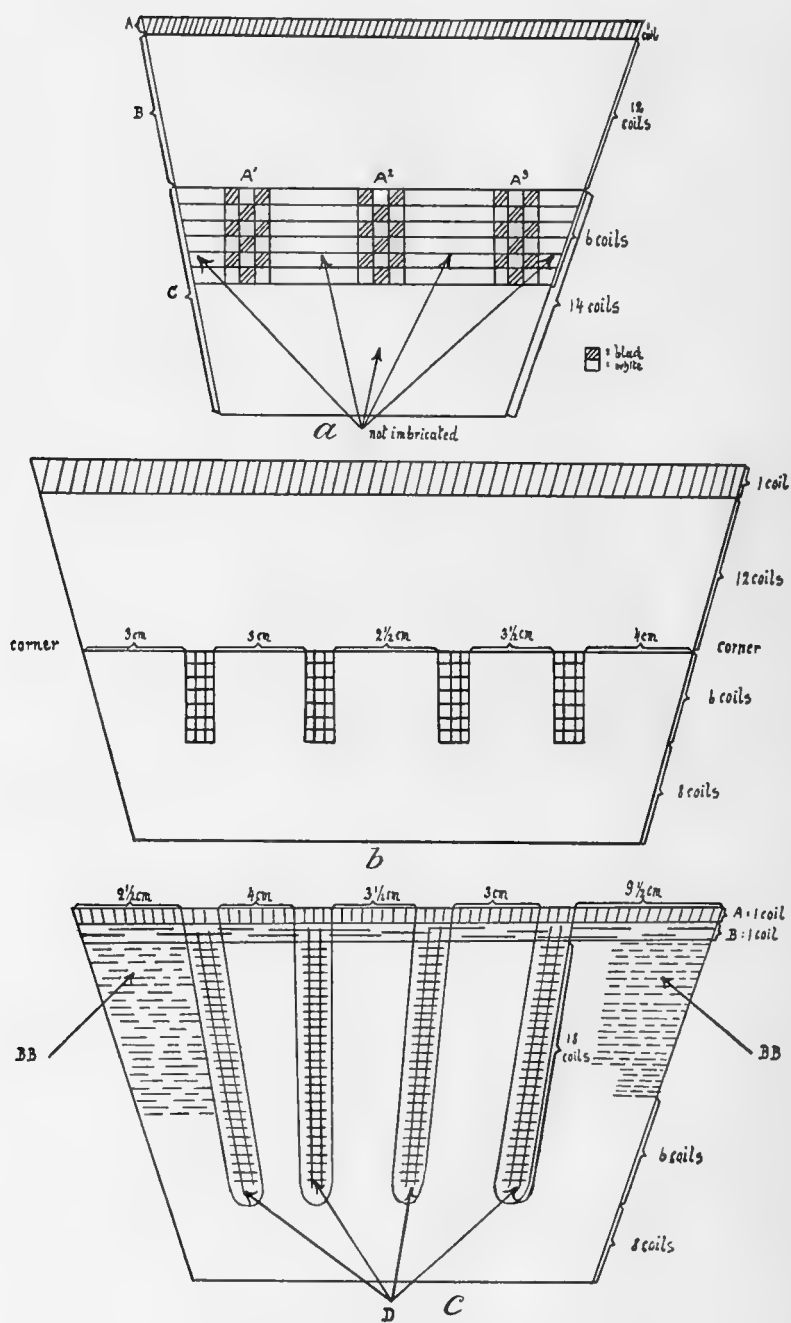


FIG. 101.—Lillooet basket. U.S.N.M. 219881

Figure 102 shows an interesting struggle with the corner in placing a zigzag design.

No doubt many smaller mistakes such as are made by the Thompson in filling vertical stripes with smaller designs occur in Lillooet work.

Plates 56, *e*; 57, *f*; and 58, *b*, show typical Lillooet forms, storage baskets with lids, and another type of household hamper. The storage baskets are constructed of flat, broad coils and are especially noteworthy for their perfect rectangular forms and beautiful ornamentation. On the first of these the maker saw that her two outer vertical stripes would be too wide on the end photographed here, and rather than spoil the whole effect chose what was to her the lesser of two evils and abruptly reduced their width. If the choice had been left to us, it is safe to state that in all probability we should have carried the stripes to the top with their original width.

Views of two baby carriers are given in Plates 42, *i*, and 43, *a*, *b*.

A number of sketches of designs and their interpretations are given in Figures 103 to 105, the first two of which were taken from Mr. Teit's book on the Lillooet Indians,⁵⁶ the last composed of sketches which he has since made.

The striking feature of these designs is the number of large rectangular patterns and the numerous variations of fly designs. That the Lillooet share some designs

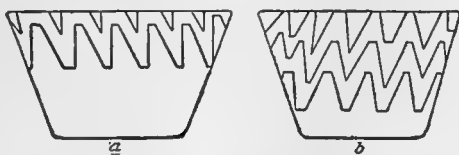


FIG. 102.—Lillooet basket. Peabody Museum 57202

with the Thompson is to be expected. Mr. Teit says that probably some other designs exist than those given here but that they must be rare, such as dream designs, realistic figures, or personal marks. A dream design is given on Plate 37, *c*,⁵⁷ which may be compared with Sketches 692, Plate 91, and 771, Plate 93, of this volume. Its interpretation is unknown. It is said to have been used only by the woman who dreamed it.

Realistic figures are seldom used by the Lillooet, and when they do appear they are small and are enclosed by some such geometric design as Figure 103, *s*. The eagle, man, dog, deer, horse, and bow and arrow are the only objects which have been noted in representations of this character. Personal marks are rare. Generally they are the initials of names or copies of horse brands and therefore modern. It is doubtful whether some other kinds of marks were used before these were adopted. The only ones seen by Mr. Teit are the letters N and L, but the Thompson use a number of initials.

⁵⁶ J. A. Teit, *The Lillooet Indians*, Jesup North Pacific Expedition, vol. 2, p. 207. The specimens from which these designs were taken are enumerated in the place referred to.

⁵⁷ The same basket is shown in Livingston Farrand, *Basketry Designs of the Salish Indians*, Jesup North Pacific Expedition, Vol. I, Part IV, pl. 23, fig. 11.

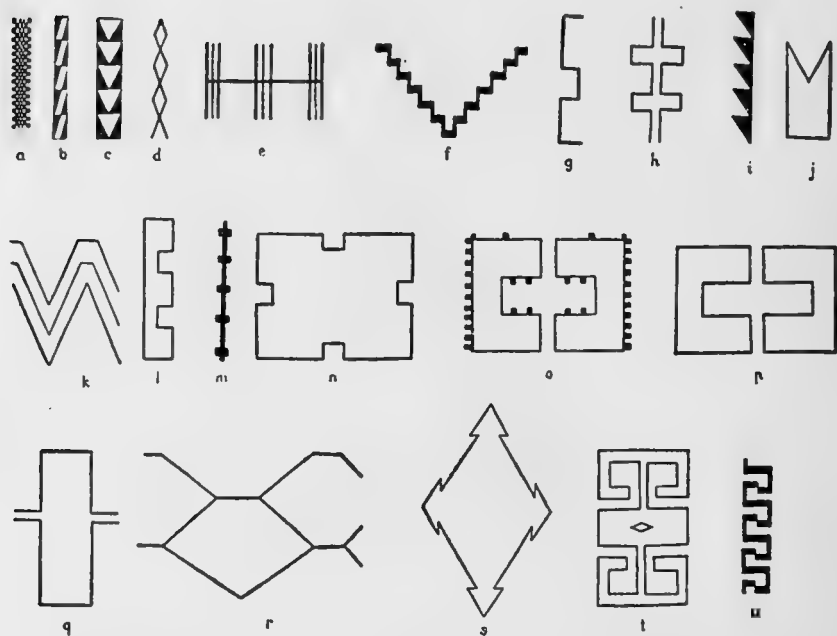


FIG. 103.—Lillooet designs. *a*, Fly; *b-d*, arrowhead; *e*, stripe; *f*, lightning; *g-h*, circle; *i*, ladder; *j*, deer hoof; *h-n*, entrails; *o, p*, tooth; *q*, head; *r*, net; *s*, arrow; *t, u*, modern patterns, copied from fabrics

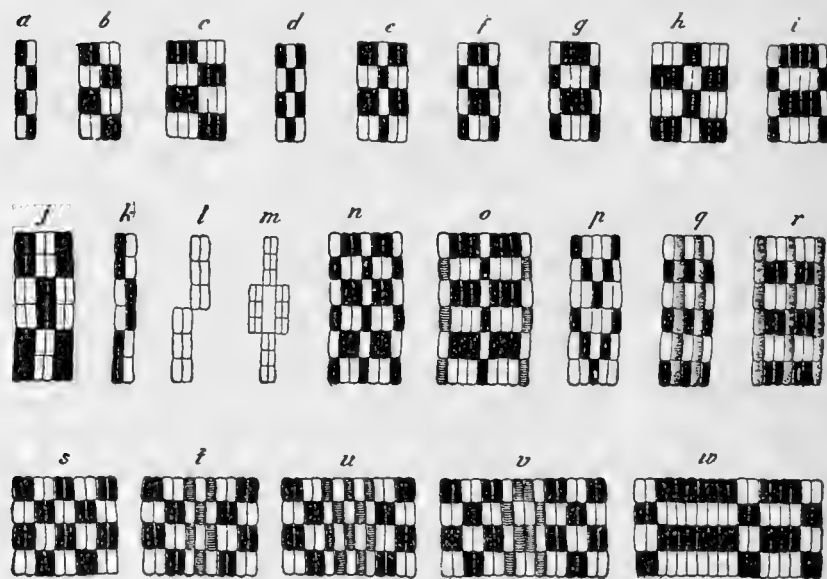


FIG. 104.—Lillooet designs. Fly patterns

A brief discussion of the typical arrangements of these few Lillooet patterns may not be out of place here, especially when comparing them with the Thompson.

1. There is a very small check known as the spot or fly pattern which is executed in beading or in small imbrications on the margins of baskets in several ways similar to the designs seen in the Thompson Sketches 1, 2, 3, 6, and 7.⁵⁸ That like 3 occurs in vertical as well as in horizontal rows. The Lillooet Sketches 3 and 4, Figure 105, may be compared with the Thompson 469, 470, and 699.

2. The fly designs are extremely common, especially in vertical stripes and droppers. A number of common variations are given

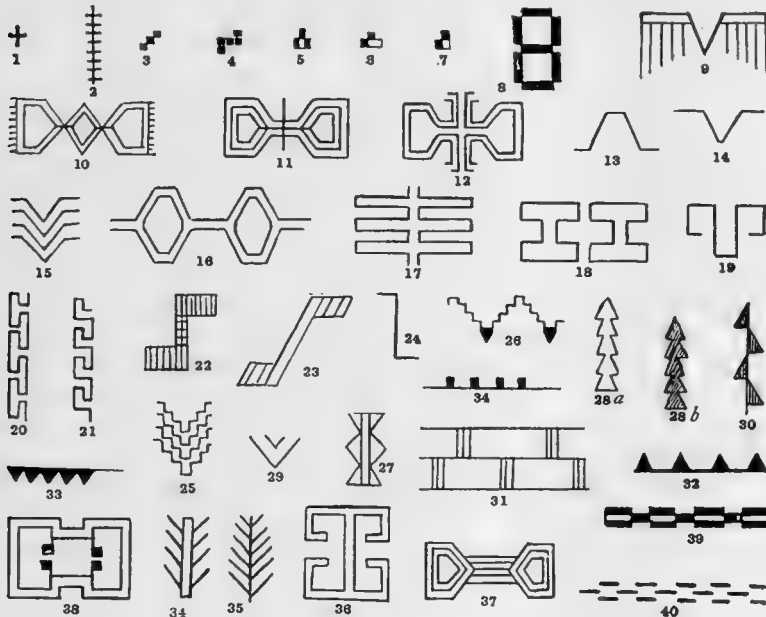


FIG. 105.—Lillooet designs

in Figure 104. Other varieties seen since the publication of the volume on the Lillooet are comparable to the following Thompson sketches: 393 but small and in disconnected arrangement; 393 connected in vertical rows, with an arrangement similar to that shown in *d*, Figure 104; 347, 425, and 212(?), only considerably smaller. In addition to these there are other variations of the figures given here. Sketch 8, Figure 105, is seen also in connected vertical series. Sketches 5, 6, and 7 of the same figure are also used as detached elements. Arrow designs which are executed in checker are sometimes called fly designs on account of their surface treatment which is considered more important than the general outline of the pattern. Again the term used is equivalent to fly designs in arrow-head arrangement.

⁵⁸ The Thompson sketches refer to Plates 78-94.

3. Butterfly and flying bird designs are not clearly distinguished, at the present time at least, for in many only the idea of motion or pose has been perpetuated in the design. Sketches 9-15 and 37, Figure 105, are types of these. No. 13 occurs in single figures or in connected single, double, or triple horizontal lines. If in triple formation its butterfly significance is lost to the minds of some individuals who then give it such names as half circle or zigzag (cf. 87, Thompson sketches). No. 14 usually occurs singly. No. 15, in much smaller size, is always arranged in vertical series and is otherwise known as the goose design. (Cf. Thompson Sketches 86, 99, 714, 715, and fig. 103, *k*. Also cf. Nos. 10, 11, 12, fig. 105, with Thompson 690 and No. 12 especially with Thompson 169, 170, and 182.)

4. The circle design, Sketch 16, Figure 105, always horizontal, may be compared with Thompson Sketches 582-584 and 587.

5. Another circle design also designated as half circle has many variations, some of which are shown in sketches *g* and *h*, Figure 103, and 17, Figure 105. These are nearly always in vertical arrangement, although they do occur singly (cf. Thompson Sketches 187-192 and 360). No. 18, Figure 105, frequently is given this name, especially when the two halves are widely separated or occur in detached figures, but when close together they are generally called mouth or head patterns.

6. Apart from the last design just discussed under 5, which is called "mouth" or "head" pattern, there are two mouth designs (*o* and *p*) in Figure 103. If small points occur around the margin the name "tooth" is frequently substituted. (See also 38, fig. 105.) This design should be compared with the Thompson mouth design, Plate 50, *d*.

7. A typical "head" design is that of *q*, Figure 103. Although it is said that there are variations of this, none have been noted, nor is it clear whether the head is that of an animal or a human being.

8. Figure 103, *l* and *n*, are variations of the "entail" design, but not *k* and *m*,⁵⁹ for *k* is a "connected zigzag," while *m* is a "circle" pattern; *l*, however, sometimes is called a "mouth" or "half circle" design.

9. There is a difference of opinion about the ram's horn design (19, fig. 105), since it also is known as the "mouth" or "half circle." It occurs in detached figures (cf. Thompson 167, 168). The reason for its various names is that almost any figure characterized by square or rectangular indentations may be called a "half circle" or "mouth" pattern (see 36, fig. 105, the interpretation of which is not given).

10. No. 20, Figure 105, is called a white man's design by many because they claim that it has been copied from border designs on textile fabrics secured from the white men. Others declare that it is an old pattern and simply a variation of the head and mouth designs, which names they give to it. The arrangement is practically always vertical. As seen in No. 20 it is said to be the full figure.

⁵⁹ This is in contradiction to other information given also by Mr. Teit.

No. 21 is a half form (cf. *u*, fig. 103, and Thompson Sketches 197 and 198).

11. There is another design (sketch *t*, fig. 103) which is also called a white man's design and is always large. Other people declare that it is an old Indian pattern and merely a double arrangement of the ram's horn design or a variation of the white man's design (No. 10, fig. 105). Occasionally it is seen without the central rectangle. (Cf. Thompson Sketches 182 and 635-640.)

12. The Thompson net designs 518-520 are similar to one used by the Lillooet (*r*, fig. 103).

13. The zigzag sometimes appears in detached figures as in sketches 22, 23, 24, Figure 105, which are like those seen in Thompson Sketches 506 and 696-699. Sketch 24, Figure 105, also resembles the Thompson 126.

14. Connected or crossing, in single, double, or triple formation as in *k*, Figure 103, we have a zigzag which compares with the Thompson 86 and 87. Some are sharp pointed throughout like the Thompson 79 and 80. The Lillooet also have it in the form of the Thompson 132, and some lean to the right, others to the left. A vertical arrangement which occasionally receives the name snake track is like the Thompson Sketch 111.

15. The "stepped zigzag," "necklace," or "flying bird" design is more rarely named lightning (fig. 103, *f*, and the Thompson Sketch 134). A second form is the Thompson 497 and a third is given in Sketch 25, Figure 105. Also compare the Lillooet form 26, Figure 105, with the Thompson 78, and the Lillooet 27 with the Thompson 329 and 330. All of the Lillooet patterns except 26 are considered to be merely variations of the butterfly or flying bird patterns.

16. The "notch" or "deer hoof" design is represented by the Lillooet (sketch *j*, fig. 103), and the Thompson 673.

17. Two varieties of "ladder" figures exist, the first, Figure 103, *i*, and the second which is identical with the Thompson 281. Here it is known as a double ladder.

18. There are a number of varieties of the "arrowhead" pattern which are found among both tribes. They are—

Lillooet	Thompson
Fig. 103, <i>c</i>	246
Fig. 105, No. 28.....	252
Fig. 103, <i>d</i> (or filled in with checks).....	522, 527
Fig. 105, No. 29.....	135, 136, 139, 140, 261, 272, 274, 275

Sketch 29, Figure 105, Lillooet, occurs in small detached figures. In spite of its apparent dissimilarity the design *s*, Figure 103, is named an arrowhead design.

19. The most common form of the "half arrowhead" design among the Lillooet is that shown in *b*, Figure 103, for a comparison

of which with the Thompson see Sketch 303. Another variety is the same as the Thompson 286, only it is occasionally filled in with checks, and is found in scattered or detached arrangement. There is also a connected form, 30, Figure 105, which is comparable to the Thompson 294, 295.

20. One variety of "stripe," Figure 103, *e*, is found in groups of twos and threes, sometimes connected with a horizontal central bar. Another variety is shown in No. 31, Figure 105, or may even be further reduced to only one horizontal layer. Compare these with the Thompson 47-53. A diagonal arrangement has no lines appearing at right angles to the "stripes." It is like the Thompson 34, but longer. This variety is occasionally called lightning.

21. For examples of tooth designs, see No. 33, Figure 105, and compare them with the Thompson 265-267 and 353. These patterns are always small and arranged horizontally.

22. The fish bone pattern is given in 34, 35, Figure 105, as well as *t*, Figure 103(?), which is sometimes called "double."

23. The chain or rope design is generally a simple horizontal band which is occasionally repeated so frequently over the surface of the basket as to almost completely cover it. Sketches 39 and 40, Figure 105, are varieties of this pattern, which bear a close resemblance to some of the fly figures and likewise to the Thompson Sketch 462.

The following table will give some idea of the comparative popularity of these patterns as they have been noted by Mr. Teit between 1895 and 1910.

No. of design, Fig. 105	Number of times	No. of design, Fig. 105	Number of times
1-----{in dots-----	24	12-----	1
-----{other arrangements--	3	13-----	5
2-----		14-----	7
3-----	10	15-----	7
4-----	1	16-----	1
5-----	7	17-----	2
6-----	5	18-----	7
7-----	1	19-----	8
8-----	2	20-----	6
9-----	1	21-----	3
10-----	2	22-----	3
11-----	1	23-----	3

CHILCOTIN BASKETRY

The typical Chilcotin burden basket is somewhat smaller than that of the Thompson and a little longer in proportion to its width, which gives it a deeper appearance than either Thompson or Lillooet types. The rim is usually much higher at the ends of the basket

than on the long sides, where it dips gradually toward the center and imparts to the upper section of the structure the outlines of a boat. The corners are quite rounded. On the outside some distance below the rim is a thick rod which encircles the basket and is fastened to it by means of thongs. This rod serves at once as a handle to which to tie the carrying straps and by which to lift the basket when loaded, as well as a general support. There is not as much flare to the walls as is seen on the usual Thompson specimen, a fact which renders the tying of the tump line around the basket impracticable. The graceful curve in the walls occurs in the lower half of the structure, whereas the Thompson curve is seen in the upper half. There is apparently almost no trace of prematurely turned corners, so that the shapes are as symmetrical as those of the Lillooet.

The Chilcotin coil, as has been indicated before, is smaller than that of the Lillooet or Thompson and much less even. The walls lack the smoothness which characterizes the work of the other two tribes, while the bifurcation of the stitches on the outside is accomplished with such beautiful regularity as to form a decorative feature which is almost never attempted by either the Thompson or the Lillooet, but which was often used by the Shuswap to the east. A slight difference exists in the technique of sewing, since the sewing splint lies over the face of the coil a little more vertically, thus enabling the artist to approach true vertical lines somewhat more successfully. The presence of a number of examples in which the lean is fairly noticeable, however, shows that this improvement is not universal in the tribe. The bottoms are constructed in the same ways that the Thompson use. (Pls. 7, *b*; 8, *a*; 58, *c-h*; 59-62.)

Other striking differences between Chilcotin work and that of the tribes to the south and east are also very apparent. Almost without exception the arrangement of the designs is in four horizontal zones or fields, three of which are about equal in width and are located below the rod, while the fourth is much narrower and comprises the space between the rod and the rim. Mr. Teit says in a note that in late years he has seen only five specimens which differed in this respect. All were entirely imbricated, although the usual custom is to leave the middle of the three fields below the rim bare except for the designs which cross it at intervals and connect the fields lying on either side of it. Of the five exceptions four had two design fields, the narrow one above the rod and a second comprising the remainder of the basket walls. The fifth lacked the rod and had only one field. Some other variations appear along this line, however, especially as shown in Plates 58, *e, g*; 59, *c, h*; 60, *e*.

The great majority of burden baskets are ornamented with designs well adapted to the shape of the basket, both from an artistic stand-

point and from the point of view of the minimum number of difficulties involved in their execution. The typical styles are the horizontal band of continuous designs, many of which are zigzags or meanders, and the slightly separated smaller elements which are sometimes seen in all-over arrangement. These types are illustrated in Plates 58-62. A great many designs are executed only in outline, with here and there triangles or squares worked in solid black by way of contrast. The background is always light.

In contrast to these there are a few decorated with vertical series of figures, which at once seem to give rise to the same difficulties experienced by the other tribes using them. Plate 59, *d*, is a very interesting specimen. The leftward lean of the stripes is much more pronounced than usual, although the basket has been very carefully made. Not only was the circumference spacing unsatisfactory but other difficulties have arisen which were practically unavoidable. Owing to the rapid increase in the wall circumference in the region of the bottom, it was almost impossible to adjust the triangles, so that near either corner a confused arrangement results which obviously was not intended. The central field presents difficulties due almost wholly to miscalculation on the part of the maker who made the compromise solution seen at the left edge. The break in the stripe on the right, however, is due to the fact that a constantly increasing coil circumference requires more stitches to sew it with each succeeding round. It is quite evident that in this instance the constantly increasing number of stitches and the fact that each was imbricated made it necessary to follow exactly the straight rows which were then more emphasized. At this particular place on the basket where it was expedient to place the triple stripe, one or the other of the lines necessarily fell where it could not be carried out by consecutive stitches, hence the break which is the more apparent because each imbricated background stitch is set off from its neighbor by its uncompromising square form. The maker had much better luck with her two top zones, for the triangles and zigzags are almost perfectly spaced even at the break which is visible in the upper left corner. Plate 59, *h*, shows another attempt at vertical decoration which was unsuccessful from the point of view of circumference spacing.

Plate 59, *b*, is a rare specimen and presumably modern. Its square corners and solidly worked designs are foreign to the earlier Chilcotin style. The circumference spacing of the elements is unusually excellent, although a slight discrepancy occurs in the central of the three zones below the rod. The imbrication of the background of this zone, while not conforming to the old Chilcotin style, is not unusual at the present time.

The filler, on account of the prevailing styles of decoration, is extremely rare; in fact not a specimen studied can boast of one. The

treatment of corners is accomplished entirely by the processes of augmentation and diminution of elements or background as the case may be. Frequently, however, the designs come out with amazing accuracy at the break, without very noticeable variations in the size of the figures encircling the basket. Plate 58, *c*, is a striking exception; the tops of the meanders differ considerably from one another, that at the extreme right on the long side and the central section of the one on the corner being elongated out of all proportion to the other parts. The treatment of the crossing diagonals in the lower field is evidence of the maker's struggle against the leftward lean of her stitches and consequently the flattened leftward running diagonals. Other baskets illustrating this method of treating corners are shown in Plates 58, *e, g*; 59, *e, f*; and 60, *c*. Often the Chilcotin secure a remarkably good correspondence between the designs of the lower and upper of the three fields below the rod in the matter of alignment. This is due to the fact that they bifurcate their stitches as far as is possible, producing perfectly straight rows between which, when necessary, other straight rows are incorporated, just as additional warps are introduced in twined basketry. By means of these straight lines they are enabled to follow up the edges of the designs in the lower field and to adjust proportionately those of the upper zone. The alignment depends somewhat on the character of the design as well as upon the watchfulness of the artist. Continuous designs can not be adjusted in this manner, nor figures between which it is absolutely necessary to maintain a fixed distance. The checker design in Plate 58, *f*, is of this character, as are all horizontal zigzags or meanders. In Plate 60, *c*, the maker secured her alignment at the cost of the increased size in figures at the corners, as well as greater distance between them, but to our eyes the result is unusually satisfactory. A remarkable specimen from the point of view of alignment, which otherwise appears very crude, is shown in Plate 58, *h*. So perfect is this that practically the same distances are maintained throughout between the figures which are the same for the three fields—all this basket has. The break at the extreme left is especially noteworthy.

Another particularly fine specimen is that given in Plate 62, *c*. The alignment of the meanders is almost perfect; their leftward lean, which seems especially pronounced in the right half of the basket, is in part accounted for by the incurve of the walls.

In a number of cases the utterly different decorations given to the upper and lower of the three fields minimize the number of difficulties usually encountered, since no attempt is made to correlate the elements of the two zones. (Pl. 60, *b*.) Here the corners are almost entirely disregarded, or at least the maker has not succeeded in even approaching symmetry, but it is interesting to notice how she

adjusted the two central zigzags of the third zone to admit of placing the flattened one where it belonged.

The corner of the basket (pl. 60, *e*) tells the tale of the struggle the maker experienced in attempting to align her zigzags. If the reader will examine the plates carefully a number of what have been called smaller errors in stitching and imbricating may also be located. These do not require special comment, particularly since so much has already been said along this line.

The remaining plates (pls. 60, *a*; 61, *g, j*; 62, *b*) present some realistic decorations of more recent origin, showing that among the Chilcotin, as among the Thompson, a new departure in basketry ornamentation

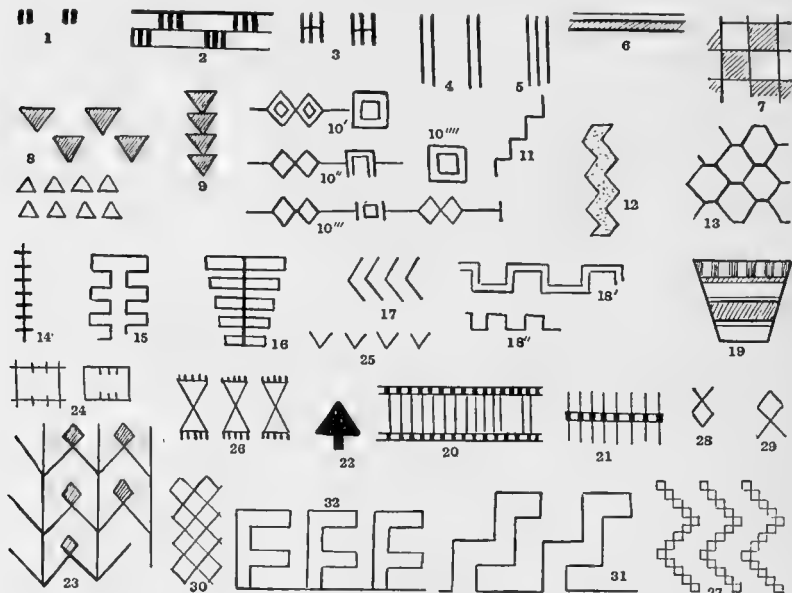


FIG. 106.—Chilcotin designs

is in progress. Among the Chilcotin representative work is not badly done and approaches the realistic to a greater extent than that of the Thompson.

Considering the intercourse that all of these tribes have had with one another, directly or indirectly, it is to be expected that similarities in the matter of designs should frequently be encountered. But the Chilcotin are more individual in this respect than their neighbors, as Figures 106 and 107 and the plates show. The majority of patterns are noticeably rectangular, a feature which is more common among the Lillooet than among the Thompson, but in neither of these localities is the trait so marked as it is here.

Sketches Nos. 1-6, Figure 106, are variations of *t*, Figure 107, although it is doubtful if they would all be given the same interpretations, namely, ribs of mammals. They are arranged either

as short lines at equal distances depending from the rim or in groups, particularly in twos. They are separated into two fields, an upper and lower, or all over one large field or in long lines in groups of three extending the full length of a single field. Pattern No. 7, Figure 106, represents the large checks used in all-over fashion to

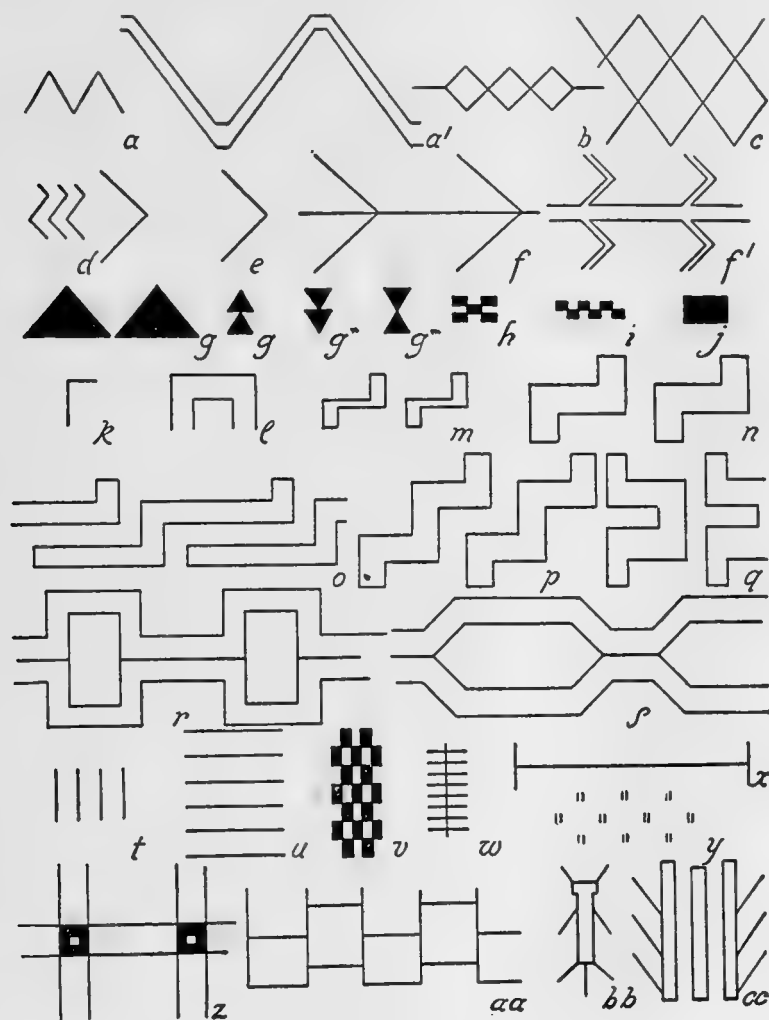


FIG. 107.—Chilcotin designs

cover one field. The triangular design elements, 8, are variations of those given in Figure 107, *g*, which are known as "arrowheads." They occur mostly in opposed rows to fill a horizontal zone, but 9 and *g''* are of course vertical series. The designs 10 are probably meant to represent a beaver, stream, and trap. No interpretations have been secured for 9 and 18. Nos. 28, 29, and 30 are known as

"beavers' tails." Compare 11, Figure 106, with *p*, Figure 107. The latter is called mountains or snakes. Both usually occur at equidistant points all around the circumference. Sketch 12, Figure 106, or *d*, Figure 107, are often seen in pairs. The last of these is called fish ribs. Sketch 13, Figure 106, is undoubtedly related to sketch *c*, Figure 107, as we have noted elsewhere. Both are called net designs.

The designs 14 and 15, Figure 106, seem to be related to 16 of the same figure, as far as structure goes, and also to *w*, Figure 107, but the interpretations are different. Sketch 14, Figure 106, is known as flies, while for 15 no name has been secured. There is a suggestion that 16 is a tree design, as are *w* and *cc* in Figure 107; *w*, however, is also known as the backbone of a fish.

Sketches 17, Figure 106, and *e*, Figure 107, are "ribs" and are used in horizontal bands.

Not more than one row of such figures as 18', 18'', Figure 106, occur in a field. These may be related to such patterns as 15, or *q*, Figure 107. The latter sketch is the curious figure which so frequently appears on Tlingit basketry in many different colors.

The trapezoidal figure, sketch 19, Figure 106, is known among the Chilcotin as a bear's foot pattern.

Nothing is given about the arrangements of 20 and 23, Figure 106. The little design 22 is used in a narrow horizontal band at the top. (See pl. 58, *e*.) Sketches 24 and 25 show patterns which occur near the rims. The latter is thought to be part of a net design. The points on the hourglass figures, Sketch 26, vary, but the average is about five.

The following table refers the reader to similar figures among the Thompson and Lillooet, where these exist.

Chilcotin	Thompson	Lillooet
<i>a a'</i> , Fig. 107-----	79-82, 86, 87-----	<i>k</i> , Fig. 103.
<i>b</i> , ¹ Fig. 107-----	522, 523, 527, 528, 536, 537, 557, 563, 567.	<i>d</i> , Fig. 103.
<i>c</i> , ² Fig. 107; 13, Fig. 106.	518-520-----	<i>r</i> , Fig. 103.
<i>d</i> , Fig. 107-----	112, 116-118-----	
<i>e</i> , Fig. 107; 25, Fig. 106.	84, 135-----	29, Fig. 105.
<i>f</i> , ³ Fig. 107-----	144, 145, 150-----	35, Fig. 105.
<i>g</i> , ⁴ Fig. 107; 8, 9, Fig. 106.	225, 244, 245, 254, 271-----	28, Fig. 105.
<i>h</i> , Fig. 107-----	16, 68, 581-----	<i>a</i> , Fig. 103 and Fig. 104.
<i>i</i> , Fig. 107-----	356, 440, 451-----	<i>a</i> , Fig. 103 and Fig. 104.

¹ The diamond is a very common element here, as it is with the Thompson, but the arrangements are a little different.

² The flattened diamond also occurs in all three tribes.

³ The Thompson have inlaid designs on pipes exactly like *f* and *f'*.

⁴ All the variations are found among the Thompson and most of them among the Lillooet.

Chilcotin	Thompson	Lillooet
<i>j</i> , Fig. 107-----	Only as checks in patterns, not as simple element.	Only as checks in patterns, not as simple element.
<i>k</i> , Fig. 107-----	156, 169-171, 173, 174-----	
<i>m</i> and <i>n</i> , Fig. 107-----	506, 696-698-----	22, 23, 24, Fig. 105.
<i>o</i> and <i>p</i> , Fig. 107; 11, and 12, ⁴ Fig. 106.	111, 128-130, 132, 501-----	See Lillooet zigzag designs all sorts.
<i>q</i> , Fig. 107-----	167, 168, 187-191-----	<i>g</i> and <i>l</i> , Fig. 103, 19, Fig. 105.
<i>r</i> , Fig. 107-----	192, 360-----	<i>q</i> , Fig. 103.
<i>s</i> , Fig. 107-----	583, 584-----	16, Fig. 105.
<i>t</i> , Fig. 107; 5, Fig. 106.	51, 60-----	Stripe designs.
<i>u</i> , Fig. 107-----	4, 22, 23-----	
<i>v</i> , Fig. 107-----	74-----	Fly designs, Fig. 104.
<i>w</i> , Fig. 107-----	683-685-----	<i>m</i> , Fig. 103; 2, Fig. 105.
<i>x</i> , Fig. 107-----	186-----	
<i>y</i> , Fig. 107; 4, Fig. 106.	53-----	
<i>z</i> , Fig. 107-----	362-----	
<i>aa</i> , Fig. 107-----	435-----	
<i>cc</i> , Fig. 107-----		35, Fig. 105.
1, Fig. 106-----	47, 48-----	
2, Fig. 106-----	52-----	31, Fig. 105.
3, Fig. 106-----	52-----	31, Fig. 105.
6, Fig. 106-----	4, 22-----	
7, Fig. 106-----	382, 402-----	<i>s</i> , Fig. 104.
8, Fig. 106-----	Very common (see Thomp- son triangles).	Very common.
9, Fig. 106-----	245, 257-----	
13, Fig. 106-----	520-----	
14, Fig. 106-----	398-----	<i>m</i> , Fig. 103; 2, Fig. 105.
15, Fig. 106-----	191, 192-----	<i>h</i> , Fig. 103; 17, 18, Fig. 105.
16, Fig. 106-----	482-----	
17, Fig. 106-----	146, 147-----	
18, Fig. 106-----	188-190-----	
19, Fig. 106-----	23, 631-----	See zigzags.
20, 21, Fig. 106-----	683-685-----	
22, Fig. 106-----	231-236-----	?
23, Fig. 106-----	670-----	
25, Fig. 106-----	135-----	
26, Fig. 106-----	320, 322-----	
27, Fig. 106-----	373, 374-----	
28, 29, Fig. 106-----	522, 523-----	
30, Fig. 106-----	518-----	

⁴ Common with both Lillooet and Thompson.

SHUSWAP BASKETRY

It is unfortunate that so little information can now be obtained from the Shuswap concerning the imbricated basketry which they are known to have manufactured formerly. Without any detailed knowledge of their ancient designs it is impossible to determine what were all of the influences playing upon the Chilcotin, just how much they owed to the Thompson and Lillooet, and whence their square designs came.

Informants state that Shuswap burden baskets varied in size but were all similar in shape; a few were like the modern Chilcotin and all had rounded corners. Some were a little longer and narrower

than others and there was some latitude in the degree of wall flare, but on the whole their contours were alike. There were also circular baskets like the Thompson kettles which were used for cooking, round baskets and bowls, as well as nut shapes of various sizes which when small were used to hold trinkets or tools, or if large, for storage purposes. The informants were doubtful about the existence of coiled cups and trays, but said these were certainly made of birch bark. They were not sure whether any of the trunk-shaped (*.stlūk*) baskets were manufactured in their tribe.

Other informants said that flat coils were not used, but that the round coils were constructed like the Thompson of splints of cedar or spruce root. The bottoms were of the watch-spring and elongated types. The people are doubtful if the other varieties were made. The rims were plain and often made of thicker coil than the basket walls, in order to increase their durability. It is thought that fancy baskets were not made, but that the Shuswap in some parts of the country produced small round workbaskets like the Thompson nut shapes.

For imbrication they believe the same kind of grass was employed that was used by the Thompson and Chilcotin. It was generally left in its natural white color, but sometimes was dyed red and yellow. The bark used for imbricating they say was like that used by the other tribes. As for quills being employed for embroidery on baskets, they were very uncertain, but remembered that they were sewed on the rims of some birch bark specimens. Beading and imbrication were both common and the amount of decoration ranged from surfaces entirely covered to those which were totally bare, relying for their attractiveness on the bifurcated stitches.⁶⁰ It is claimed that some bifurcating was executed in bands which enhanced the decorative effect, but on this point again the people are very uncertain.

RELATION OF IMBRICATED BASKETRY TO OTHER FORMS

We shall now turn to a consideration of the relation between the imbricated basketry of the Thompson, Lillooet, and other north-western tribes and compare the art with that of the Californian basket-making tribes and that of the Tlingit of Alaska. We shall also note what may have been the influence of the Plains, where, although baskets are not made, a colorful and striking art prevails, which finds expression in exquisite beadwork and the gaily painted leather *parflèches*. It must have made a profound impression wherever it was encountered.

⁶⁰ See James A. Teit, *The Shuswap*, Publications of the Jesup North Pacific Expedition, Vol. II, fig. 217.

YAKIMA AND KLIKITAT BASKETRY

The following account of Yakima and Klickitat basketry is by Mr. Teit, who completed his study during the summer of 1909.

He says: "I visited the people on Yakima Reservation last summer to obtain interpretations of their basketry designs, particularly those represented in the basketry collection of the American Museum. I did not make minute inquiry on any other subject. As I was provided by the Museum with very good photographs of all specimens of baskets and bags, identification and interpretation of the designs was effected without much difficulty by showing the photographs to various women who were considered to be authorities on the subject. From these women and others I also gained in the time available as much information as possible regarding the material used and data of value relating to basketry and other industries. I was successful in obtaining interpretations of nearly all the designs occurring on the Museum baskets. In this I was aided by Peter McGuff,⁶¹ who was with Doctor Sapir as interpreter. He speaks both the Wishram and Yakima languages. I obtained the following information mostly from the Klickitat, who are the principal basket makers on the reservation."

Bark baskets.—According to the Klickitat no birch-bark baskets were made by them, and very few, if any, by the Yakima, Wishram, and other tribes near by. However, cedar-bark baskets were manufactured by both the Klickitat and Yakima, and were much used by them for gathering blueberries on the mountains. Most of them were of kettle shape. They were of various sizes, and roughly made out of a single piece of bark. They were generally designed for temporary use, and were seldom kept around the home. They had no ornamentation of any kind, and were generally stitched together with split root. I did not see any specimens.

Woven baskets.—Several kinds of woven baskets were made by the Klickitat. One variety was plaited (in some cases they appear to have been twilled) and had a braided rim. The material consisted of narrow strips of maple bark from the part lying next to the sapwood. In some, different shades of bark were so arranged as to produce a decorative scheme, but the majority were ornamented with elk grass in three colors, with designs of similar character to those on other basketry. Elk grass, in its natural color, gave white; dyed with wolf moss or root of Oregon grape, a pale yellow; and stained by smoking, a dull black. These baskets were flexible, had a somewhat rounded bottom, were all of one shape, and did not vary much in size. At the present day very few of them are made, owing, it is said, to the difficulty of procuring the materials near

⁶¹ Peter McGuff, a man of remarkable intelligence, died in 1928.

at hand. Many women declare that even in former times when the range of the tribe was much greater many Klickitat families did not make them, and some think their manufacture has been learned from tribes west of the Cascades. They were not produced by any of the Yakima or eastern tribes, but were woven by the Cowlitz and other western groups. These baskets are called *waxxo'mexom*, and Plate 63, *a* and *c*, appear to be examples of them.

A second kind of basket is called *wa'pas* (J).⁶² It appears to be of exactly the same type as the flexible baskets of the Nez Percé described by Spinden⁶³ in his account of the Nez Percé. They were woven of Indian hemp twine, or of willow bark, both warp and woof, although occasionally the warp was of the one material and the woof of the other. The majority were of willow bark throughout. Ornamentation in false embroidery was effected with willow bark dyed black (generally by burying in black earth or mud), and with tule in natural greenish and whitish colors, or with elk grass. The Klickitat made a great many of these and still make them, but the Yakima now have discontinued the art almost altogether. Large numbers were and are still made by the Wasco, Wishram, and Cowlitz. Specimens of these may be seen in Plate 66, except *i*, *j*, *o-r*.

Woven bags.—These are called *wawexpa'* (J) and are the same as the flat wallets made by the Nez Percé and some Salish tribes, which have been described by Spinden⁶³ and others. They were woven of Indian hemp string, and ornamented with tule in its natural green, yellow, and white colors. Willow bark in brown and black was also sometimes resorted to long ago. In later days corn leaf and colored yarn were substituted for the tule and are now the only materials employed for designs. The bags were all of the same shape but varied considerably in size. Very few were made by the Klickitat. It is said that the art of weaving them was probably learned from the Yakima, with whom, together with other eastern tribes, this work is supposed to have been indigenous. None were manufactured by tribes living west of the Cascades. Formerly the Yakima developed quite an industry, but it has now dwindled to practically nothing, while the Klickitat apparently have ceased making them (pls. 63, *b*, *d-h*; 64, 65).

Woven caps.—Fez-shaped caps of the Nez Percé type (such as described by Spinden) were made by the Klickitat and according to them were worn by the women of all the surrounding tribes, including the Cowlitz, Wishram, Wasco, Tenaino, Umatilla, Wallawalla, Nez Percé, Yakima, Wenatchi, and Spokane, and also the Klamath and several southern tribes. They were woven of Indian hemp twine, ornamented with elk grass, white or dyed yellow, or with

⁶² We are obliged to Mr. Melville Jacobs for a revision of the Klickitat terms marked with a following (J).

⁶³ H. J. Spinden, *The Nez Percé Indians*, Mem. Amer. Anthr. Asso., vol. 2, pt. 3; pl. 4, *a*; figs. 4, *a*, 11.

natural or black willow bark. Occasionally elk grass was dyed red with a decoction of alder bark. (See pl. 66, *o-r.*)

Woven blankets.—Many old Klickitat people remember the weaving of goat-hair blankets. The thread was spun on spindles resembling those of the coast Indians. Dog's hair was never used, but strips of the skin of rabbits, deer, fawn, or beavers made excellent blankets. The manufacture of these was discontinued at a much earlier date than that of goat-hair blankets. Square looms were used in the weaving of all kinds of blankets and their products were formerly sold in considerable numbers to the Yakima, Wallawalla, and other eastern tribes. The Cowlitz and some of the Snakes living near the Nez Percé are also reported to have made woven blankets of various kinds.

Mats.—I did not try to gain much information about matting. The sewed tule mat was very largely used by the Klickitat and Yakima for covering lodges, and probably other kinds of mats were manufactured.

Skin wallets.—Various kinds of buckskin wallets, bags, and pouches were made. Ornamentation on these was formerly in quill embroidery, but beads have been so long in use that quillwork is now almost forgotten. Beaded pouches are still sometimes made, and silk embroidery is used to a slight extent.

Coiled baskets.—The ordinary coiled type of basket was used extensively, the coil consisting of the pliable roots of the cedar split into very fine strips and bunched together. The sewing was of the same material, but selected for length and regularity of width. The long trailing roots of the cedar were sought, those near the trunk being too brittle. Sapwood was never used for the coil. At the present time the roots are gathered in the Cascade Mountains when the Indians go to pick huckleberries, as no cedar is found on the reservation. Roots of spruce and other trees are considered inferior for basket making and were never used by these tribes. So far as the materials and manner of manufacture are concerned, there appears to be little difference between the Klickitat and the Thompson Indians. The Klickitat and Cowlitz, however, seem to finish the rim coil invariably with a false braid, while among the Thompson people this is practically never done. The ornamentation for this type was imbrication in white, brown, black, and yellow. The materials were elk grass and willow bark. The former was gathered in the mountains to the west, where it grows about two feet tall, and was used in its natural white color, or dyed yellow with wolf moss and the roots of the Oregon grape. Willow bark was left its natural brown color or dyed black by burying in dark mud. It seems that cherry bark, tule, or corn leaves were never used. Coiled baskets are named according to their shape and size. I failed to obtain a general name for the technique, although one probably exists.

By far the most common shape is like an inverted truncated cone. The bottom is about half the diameter of the mouth and the height is greater than the width. When of large size it is called *.ctkap*; when medium *tuksei*; and when small size, *tukseituksei*. It was used for all kinds of purposes, such as carrying loads, packing on horses, and root gathering. Such shapes had no foot, and none were made with square mouths (as in those of the Lillooet, for instance). No rods were used on the bottom (like some Shuswap examples), nor around the rim (as among the Chilcotin). A wider mouthed variety, shallower in proportion to its width, was formerly made and used as kettles. In some of these the bottom was as wide as the mouth. These varieties are now rarely seen. (Pls. 67-69. Pl. 68, *i*, is a slightly different shape formerly common, and Plate 68, *d*, is one of the kettle type.)

Another form very similar to the nut-shaped baskets of the Thompson is called *leta'i* (J), in which the aperture was just large enough to admit the hand. They were of various sizes, the larger serving as water jars in the house. Plate 68, *d*, *h*, are specimens of these. A second variety with a neck called by the same name was used for carrying water (pl. 68, *a*, *b*). An oblong form called *.ké'pa'i* resembled the *.stlūk* or trunk baskets of the Lower Thompson. It was called *ezze'pín* by the Wishram who formerly bought it in large quantities from the Klickitat. It was used particularly when traveling with horses, for carrying feathers and other things which might become crushed or broken. The larger sizes were generally used in the house, and in them were stored the best clothes and other valuables. The small ones which sometimes were made with lids often served as work baskets. Plate 67, *k*, *o*, are specimens of these; also possibly Plate 71, *d*. Circular forms are not known as *.ké'pa'i* baskets. *leta'i* (J) and *.ké'pa'i* are seldom made nowadays.

The Indians say that there has been no change in their method of making coiled basketry from the earliest times, nor in the character of the materials used. All the shapes formerly used are still made, although the output in some cases may now be greater or less. Practically no new shapes have come into vogue. Some people nevertheless think the common *.cte'ka'p* basket has been somewhat altered in shape within the last 30 or 40 years, and is now generally made with rather less width in proportion to height. The Klickitat think that some of the Shoshoni and Nez Percé formerly made some coiled ware, but it was not imbricated. The Klickitat still make great numbers of baskets. Formerly certain families confined themselves mostly to weaving flexible pieces (*wa'pas* [J]). All the shapes of baskets known to the Klickitat were also made by the Cowlitz and neighboring tribes west of the mountains, and as far as the informants are

aware these were the only common shapes in use. The Cowlitz made fewer of the oblong baskets (*kê'pa'i*) than the tribes immediately north of them and toward the sound. Probably not all the tribes west of the Cascades made coiled basketry.

Parflèches.—Parflèches were of the same shape as those obtained from other interior tribes and came into vogue after the introduction of the horse. Tribes to the north and east were using them long before the Klickitat. Later the Klickitat procured many from the Yakima and a few from the Wallawalla, but seldom manufactured their own and when they did they left them unpainted. The Yakima were merely traders, however, acquiring their stock from the tribes east of the Columbia, although occasionally they made and painted a few. Buffalo and horse hide, and in later days cowhide, were the materials used by all the tribes.

Basketry designs.—The designs on soft and hard baskets were of the same character, some having numerous variations. The pattern generally covered the whole field, arranged in horizontal, diagonal, or perpendicular bands. Zigzags were common. A few coiled baskets were unimbricated, others were ornamented only with beading, and the appearance of more than one pattern on the same basket was rare. The designs used by the Klickitat and Yakima were almost entirely geometrical and the names given them were the same. Cowlitz designs were practically identical with those employed by the Klickitat, but those used by the Wishram and Wasco were of quite a different character, consisting of quite realistic animal figures with names such as "people," "man," "woman," "deer," "buck deer," "dog," "horse," "salmon," "butterfly," "head," and "face (human)." Among the few geometric designs made by the Wishram and Wasco were the Klickitat "arrowhead" and "eye" and simple lines generally horizontal but occasionally perpendicular. The Tenaino employed realistic, animal, and geometric designs in about equal proportion. The Indians say that there has been little or no change in Klickitat basketry designs since the earliest times, that very few patterns have been introduced, and that white men's designs are not copied, excepting in cases where whites may give a special order for a basket to be made with a certain design, such as the American eagle. These never become tribal designs and are seldom reproduced. Most of the common Klickitat designs and variations are represented in the collection of the American Museum of Natural History.

DESIGN NAMES

Klickitat name	Meaning in English	Plate numbers
1. O'xwi't	Net	63, a, c; 65, a, c.
2. Ppa'u (J)	Bullsnake	
3. Wuxa' (J)	Leg or foot	63, f, h; 64, c; 66, b; 67, d; 68, e, f, j; 74, j, n.
4. Tca'wena	Gill	63, d, c; 66, n; 67, k; 74, g, m, are said to be variations arising from the combination of "leg" and "gill" elements. Those on 74, g, were called "gill" by one woman and "leg" or "foot" by another, while a third said that they were designated by both terms. 67, k, is said to be a variation of the "gill." It appears that some variations of the "leg" and "gill" designs have become merged so it is often difficult to decide which name to apply.
5. Keshwi'kweza	Zigzag	68, k; 70, o, are examples; 65, a, is given the same interpretation; 74, i, is a variation; 74, f, is called "zigzag connecting up and down"; 67, k, is said to be the "leg" design combined with the "zigzag." The element of this pattern is the simple zigzag. Other designs such as "step," "leg," and "gill" form zigzags, but these are called "zigzag step" design, and are not considered as the real "zigzag."
6. Teteni'kan	Spiral	70, w; one woman called 63, b, "spiral." The others distinguished it as "spiral zigzag short turn" ("short turn" appears to be applied where one line in the zigzag is shorter than the other). The design element is evidently a simple line running spirally around the basket.
7. Tso'umtsoum	Contracted ¹	Zigzags which nearly meet are sometimes called by this name.
8. Wati'ke (J)	Footprint	This is shown in 66, p, q, v; 74, b, l. Of these the first is considered to be the "true step" design, but 66, k, is a combination of "foot" or "gill" with the "step."
9. A'sa' (J)	Finger-nail	67, m, n; No. 6, the upper design on 67, h, and the filler on 67, g.
Also called a'tcac. (J)	Eye	On the last one the eye is combined with "leg."
10. Waxti'c	Arrowhead	67, j, l, p; 74, c, and the lower design on 67, o.
11. Cwa't'tac (J)	Cloud	
12. Petxti'nox	Splice? ²	
13. Pizpiz	Bar or line ³	
14. Ete't (J)	Tooth	67, i; 68, i. This name is also often applied to common beading.

¹ Contracted so as to be smaller in the middle or at some other part.² Likened to the splicing of a rope, or a kink or tangled knot in a long rope.³ Any horizontal mark of some length.

Klickitat name	Meaning in English	Plate numbers
15. Tī'n (J)-----	People-----	67, <i>h</i> ; 74, <i>d, e, k</i> .
16. Wa'laqwalaq(J)---	Butterfly-----	66, <i>a</i> .
17. Wa'iwai (J)-----	False (foot)-----	A variety of the "foot" or "false foot" may be seen on the upper figure, Pl. 91, Mason. ⁴ The other design on the same basket is "finger-nail" or "eye."
18. Tū'ktituk-----	Imprint of stroke. ⁵	There is no photograph of this. The design is said also to have occurred on coiled basketry.
19. Pweikiki-----	Scratch-----	I did not see any baskets with this design. One woman called the design on 68, <i>g</i> , "zigzag scratch."
20-----	-----	I heard of another design called "feathers," "narrow feathers," but did not see any examples. It was used on both baskets and bags.

⁴ Mason's design shows the "foot," while in the "false foot" on Mr. Sargent's basket the "foot" is lacking.

⁵ Same as marks left on a soft substance after having been struck by a stick.

Women and girls made all the woven baskets and bags, but hide bags were sometimes made by men. It seems the simplest form of the design element is called a "true" design. In some cases the most common but not necessarily the simplest or original "false" design, seems to be that variation of the pattern which is most curtailed or conventionalized. It is thus generally furthest removed from the "true" design, but at the same time becomes a recognized standard pattern. Designs regarded as a whole, apart from the element, are designated by compound descriptive terms; for example, the element may be called "zigzag," but the name of the design itself may be "spiral zigzag short turn," or "zigzag connecting up and down." There are many such terms qualified as "true," "false," "not true," "short turn," "double," "large," "small," "connecting," "connecting up and down," or "above and below," "perpendicular," "zigzag," "diagonal," "sharp point," "close together," "detached." I did not try to list these, but merely noted some of those I heard.

Designs on wallets.—The Klickitat admit that they know very little regarding designs on bags and that the interpretations of the designs by the people who made them may be in some cases different from theirs. Those on the small bags formerly made by them were copied from the Yakima who they think probably made the bags shown in Plates 64 and 65, although it is possible that they are of Nez Percé or Umatilla manufacture. As pattern names were mentioned "spiral" and "arrowhead." I could obtain no explanation of any of those given in Farrand's book. Bag designs made at the present day are the same in character as those produced many

years ago. On the whole the figures used on bags differed from those applied to basketry, but occasionally identical patterns of the same name occurred on both. Usually both sides of the bag were alike, at least long ago among the Yakima, but a few specimens bore a different design on each side, and others were ornamented on one face. There were also plain bags of the same material and weave. I did not meet any Yakima who could furnish more information on bag designs than I obtained from the Klickitat.

Designs on caps.—Designs on caps among the Klickitat and nearest tribes were usually composed of zigzags of various descriptions, one design to a cap, but occasionally a very small secondary pattern appeared in the band around the margin, usually an "arrowhead." Examples are Plate 66, *o-r*. A plain zigzag was common (pl. 66, *o*) while "zigzag gill" and "zigzag leg" were frequently seen,⁶⁴ as well as "contracted" and "arrowhead" arranged in zigzags.

Designs on blankets.—The goat-hair blankets formerly woven by the Klickitat are said to have been decorated, but I could learn very little regarding them. They say many of the designs were similar to those used on basketry, evidently entirely geometric. Spirals and zigzags were common. However, I did not make extended inquiry into the subject.

Designs on matting.—I did not inquire much about this question, but was told by one woman that no ornamentation was applied to mats.

Designs on skin bags.—Although seeking little information on this subject, I learned that designs were abundant in quillwork and beadwork. Little is now remembered about quillwork, the designs of which are said to have been entirely geometric. Solid beadwork covering one or both sides of a bag was not uncommon, blue and white in about equal proportion being used as background. Most of the designs were floral, some copies of flowers growing in the mountains, others geometric, representing many elements, including the "contracted" design and the "arrowhead." Realistic figures, representing people and animals, occurred on a very few bags.

Designs on parflèches.—The Klickitat seem to know nothing of the meaning of these. The designs as formerly painted by them and the Yakima were all copies of those used by the tribes of the interior to the north and east.

SUMMARY AND CONCLUSION ⁶⁵

Throughout the area occupied by the Salish tribes and in the country of the Chilcotin and Klickitat it has been seen that cedar is the preferred material for coiled baskets, for which spruce is substituted only when cedar is not obtainable. There are a few local

⁶⁴ See Spinden, *op. cit.*, fig. 15, pl. 6, for these varieties of the "gill" and "leg" patterns.

⁶⁵ By Helen H. Roberts.

differences in the grasses and barks chosen for imbricating, but on the whole *Phragmites phragmites* and cherry bark are in most general use.

Coiling is the prevailing technique of the entire region. The larger baskets are all coiled, and on account of their number and constant requisition in the household are very conspicuous. There are, however, other kinds of technique employed. The Thompson, and doubtless most of the other tribes, plait mats of rushes and twine caps and bags from spruce root. The direction of coiling for all tribes is anticlockwise, except in the case of left-handed workers, who have produced a number of specimens now in museum collections. In essentials the technique of coiling is the same with all the tribes. There are local and even individual variations in the types of bottoms manufactured and in the size of coil used. There are also slight differences in stitching, for some tribes employ furcation to a considerable extent while with others it is only a matter of accident and scarcely noticeable except on the wrong side of the work. The technique of beading and that of imbrication are identical everywhere. From available data it appears that the great center of the coiled basketry industry lay formerly and still is located in the Cascade region of British Columbia, where it seems also that imbrication had its beginning, whence it spread in all directions.

At some early time round baskets not unlike the present forms produced by the Klickitat were the prevailing types over the whole area and were used for transporting burdens on the backs of men or horses as well as for kettles and tubs. In the course of time, however, a change occurred. Whether the idea came from the coast where square wooden boxes were made or was evolved in the immediate region as a result of remedying what proved to be a faulty form when used for transportation on horseback, is not clear. But at least in the Thompson and Lillooet localities the baskets gradually became more oval, finally leading to the present-day types, the Thompson still oval with corners clearly discernible in the upper portion of the structure, the Lillooet decidedly rectangular from base to rim. The Chilcotin have long produced an oval form which is narrow in proportion to its length. A number of their new specimens are quite angular. The Shuswap also adopted an elongated type. The Klickitat, however, have never modified their old round shapes, and in many other particulars show that they have been subject quite as much to influences from other directions as from the Salish area. Considering their location and history, this may well have been expected. Although they practice imbrication, it is true, their work is coarser than that of the other tribes. They are masters in making twined bags, a technique which is undoubtedly older with them than imbrication. They finish their basket rims with the same braid

stitch so common among the Ute and other Shoshoni, who were their neighbors, and make frequent use of the looped coil, which has only comparatively recently been adopted by the Thompson for finishing the rims of fancy baskets not intended for hard use.

The burden baskets of the Thompson and Lillooet, while differing from each other quite noticeably in shape, and among themselves in size, show a remarkable conformity to local standards of proportion. While the people are not able to formulate their ideas on proper proportions with entire unanimity of opinion, an objective study shows that there is a set of fairly constant proportions followed among the Thompson and another among the Lillooet.

Thompson burden baskets are about three-fourths as wide as they are long, while the height is about equal to the width of the mouth, or a little less. The area of the bottom is about one-fourth that of the mouth, although more variation exists here than in any other part of the structure.

Lillooet baskets are more nearly square at the mouth, the width being a little more than three-fourths of the length. The height, too, is usually less than the width of the mouth by at least 10 per cent. The bottoms are of two kinds, of which one is wider than the other, and the whole shape is decidedly rectangular, with a very small base and flaring mouth, accentuated by straight rather than by incurving walls which the Thompson employ.

The baskets are ornamented solely by means of beading or imbrication. So many and varied are the styles of decoration, so unmistakably are they allied with types of art which appear conspicuously in all the surrounding regions through the medium of entirely different forms of weaving or even outside of the textile industry, so unique and peculiar is imbrication and so singular has the history of its development evidently been, that the student is irresistibly led to endeavor to reconstruct if possible from the scattered threads discernible here and there the rich fabric of its story and the art which through its means has for many years flourished almost like a desert bloom in the far-away valleys of the northern Cascade Range.

We have seen that the earliest birch-bark baskets of the Shuswap⁶⁶ were ornamented on the rim by strips of beading. These ran over and under the stitches of varying lengths which bound the bark to the rod of the rim and formed simple yet effective patterns. The birch-bark baskets of other regions were decorated in a similar fashion, as early collections show. Along the Skeena River, where imbrication was not used, in addition to the bark technique the people plaited baskets of narrow strips of cedar bark and also made twined bags.⁶⁷ In order to create designs in the latter two weaves they used overlay

⁶⁶ J. A. Teit, *The Shuswap*, op. cit., pp. 202 et seq.

⁶⁷ This according to Teit. I have seen no specimens of this kind.—F. B.

strips of bark which had been dyed black in a manner probably similar to the dyeing processes known over all the region. In the plaited work, wherever designs were desired, the thin strip of black was laid over the strands, which were woven, and was carried along with the warp or woof. The end of the overlay was caught beneath a crossing element and thus was both hidden and secured. In such work, although checker patterns or such designs as might be created in beading are usually the artistic limits, it is also possible to obtain solid color effects because the plaiting elements and consequently the overlay run in two directions. The same overlay process is pursued in the twined work. The fine black strip is placed on top

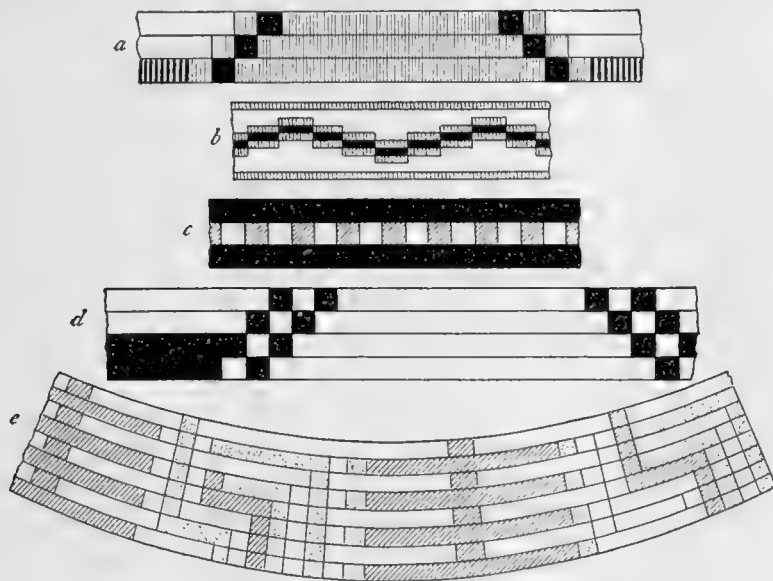


FIG. 108.—Quill work, Alaska. A.M.N.H.

of the element to be twined and is carried along with it. If only one of the twining elements is so covered the resulting design will show only every other stitch black, but if both are covered continuous lines of color are achieved and quite elaborate designs may be worked out. Perhaps it is superfluous to remark that no trace of the designs may be seen on the wrong side of the work. On the twined specimens the finished appearance resembles the Tlingit false embroidery. But there is an important technical difference, since in false embroidery the bark is whipped around the twining element only when it appears on the outside of the fabric; that is, in front of the warps. In the overlay work the bark follows the twining element throughout its passage. The individual stitch in false embroidery has a more vertical trend than that in overlay. The false embroidery stitch is akin to that used in coil sewing, since it wraps around the element, while the overlay stitch is a straight running process exactly like beading.

It was through wide acquaintance with and interest in all forms of art practiced by these northern tribes and particularly in the ornamental designs wrought on skin clothing by means of the ancient porcupine-quill embroidery that Dr. Franz Boas first noted points of similarity between these and some of the patterns applied to basketry. He at once sensed the connection, but it was not until recently that a number of very old skin garments from the Northwest were again unearthed at the American Museum of Natural History for purposes of comparison. Although the quillwork was falling to pieces and in places entirely gone, so that accurate reproductions of the designs were in many cases rendered hopeless, it was possible to see that a great number of so-called "fly" patterns had been employed which were practically the same as those used on basketry. Since most of the quillwork is in horizontal bands on these garments, the patterns so arranged on the baskets are most nearly like them. The few that were capable of reproduction are given in Figure 108. Some others

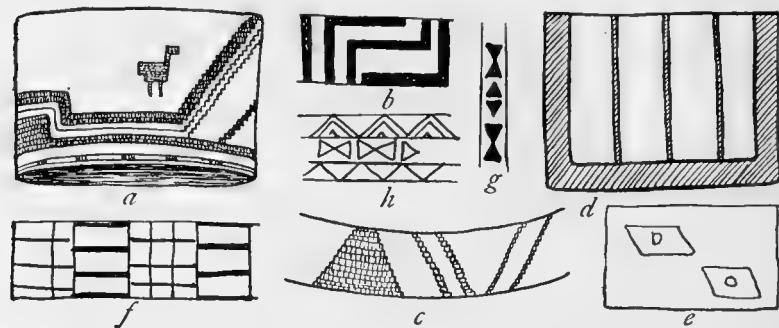


FIG. 109.—Quillwork and basket embroidery from Tlingit, Alaska. Field Museum

from the Field Museum may be seen in Figure 109. Designs of Figure 108 and *b*, *c*, of 109 are especially common on baskets. It will be remembered that many old basket patterns of the Thompson given in the list of sketches were interpreted as embroidery designs. Thinking that these might offer a clue, they were for convenience collected by the writer in Figures 110 and 111. The results were very interesting, for the checker and fly patterns predominate and in general character are quite similar to the old quillwork patterns.

The question of technique, however, is more interesting and enlightening than the designs themselves. The Koryak of Siberia cut slits in the edges of their fur or skin robes and decorate them as described by Jochelson,⁶⁸ who says: "A series of narrow slits are made in the black skin which is to be decorated (fig. 112). A strip of white dogskin of the same width as the slits is laid under the line of the slits and a small loop of this skin is pushed from underneath

⁶⁸ Jochelson, *The Koryak*, Jesup North Pacific Expedition, vol. 6, pt. 2, p. 679.

up through the slits, where it is caught by a sinew thread which lies on the surface of the skin and is passed through the loops which are then drawn tight."

While it is not meant to convey the idea here that the Indians of the coast of Alaska learned to do porcupine-quill work or beading from the Koryak, certainly it is very interesting that a technique which is fundamentally so similar to one type of quillwork about to be described should exist in a not distant region and that, so far as is known, it is not employed elsewhere in the world.

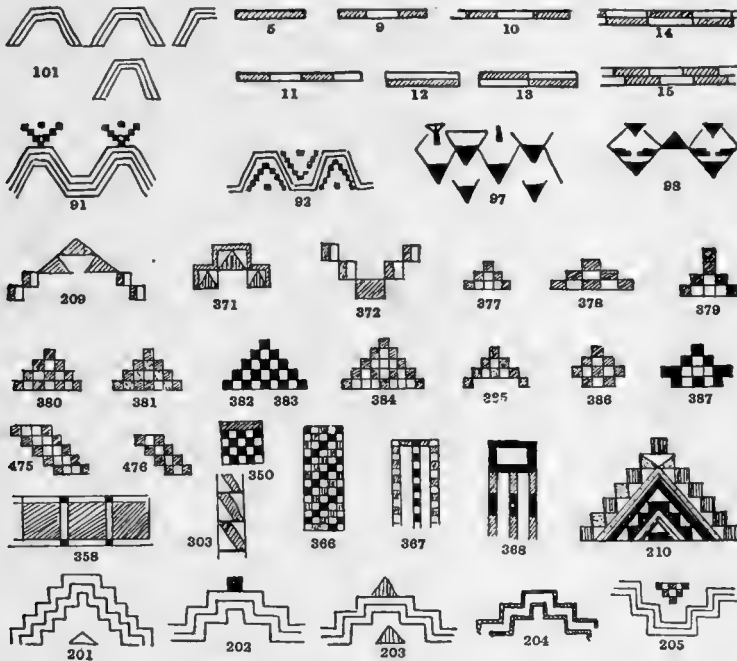


FIG. 110.—Embroidery designs from Thompson baskets

A number of types of porcupine-quill technique are in use, all of which have been fully described by William C. Orchard.⁶⁹ That which is most like the skin work of the Koryak is strangely enough the finest and most delicate of them all. It has been made from Alaska to the Great Lakes, and even among the Iroquois. It is woven on a loom. The technique is described as follows:

The process of weaving consists first of making the warp strands of either sinew or vegetal fiber, which are stretched side by side their entire length on a bow, much as a bowstring would be strung. To keep the warp strands spread apart the desired width two pieces of thick, leathery birch bark are perforated with a straight row of small holes corresponding in number with the number of strands to be used and the distance between the perforations corresponding with the width of a flattened porcupine quill. A piece of bark so prepared is placed at

⁶⁹ William C. Orchard, *The Technique of Porcupine-Quill Decoration among the North American Indians*, Museum of the American Indian, Heye Foundation, New York, vol. 4, No. 1.

each extremity of the warp elements with a strand running through each perforation; . . . a strand which may be included among the weft elements is attached to the outside warp strand and then made to pass alternately over and under the warp to the opposite side, where it turns and crosses over again, passing under those strands which it crossed over during the previous movement.

The piece examined by Doctor Boas and the writer differed from this in that there was no interweaving of warp and weft. The weft simply lay on top of the warps all the way across, then turned and lay under them, then above, etc. The particular bit of embroidery examined was made by the Tlingit Indians of the Alaskan coast. With this exception, Mr. Orchard's description fits the case exactly. He goes on to say:

This operation is repeated to completion. Meanwhile, porcupine quills have been woven in between the warp strands over and under the crossing elements. As the work proceeds the quills are crowded together, so much so that the crossing strands are hidden between the corrugations; in fact, the only strands showing

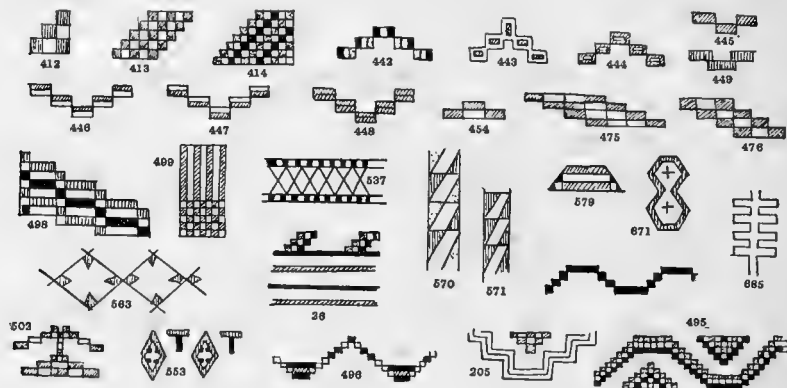


FIG. 111.—Embroidery designs from Thompson baskets

in a finished piece of work are the two on the outer edges and the loops of the crossing strands which together form a selvage edge. As the length of a quill becomes exhausted the end is allowed to protrude at the back of the work; another quill is inserted with its end in the same position, then the crossing cord is driven tight against the two ends and the weaving is continued. The quills are used in a moistened, pliable condition; when they become dry they are stiff and hard and do not break away from such a fastening. After the work is finished the protruding ends are cut off close to the weave.

Figure 113 has been taken from Mr. Orchard's book. It does not fit his description of the relative positions of warp and weft, but the one the writer has just given. The Tlingit specimen, when folded, reveals along the fold the intersections of the wrapping weft with the warp between the strips of quill, although the work is very close. An examination of successive intersections along one line of weft proves that the weft and warps do not interweave. Although the figure shows only two strips of quill, there are usually about 20 on a strip which is only a little more than an inch wide.

A moment's consideration will make it clear that with the non-interweaving of the weft with the warp strands, as in the Tlingit specimen, the work is fundamentally the same as the Koryak skin work but achieved in a slightly different manner. The warp when it lies on top of the quills takes the place of the skin between the slits, while the weft which runs under the quills, and consequently under the warp, acts in the same capacity as the thread which runs beneath the loops of white dogskin. The skin work would be more nearly like the quillwork if the thread really did lie on the surface and the dogskin were passed up over it and down on the other side than if the thread were threaded through the loop. The quillwork is even more like the beading on basketry. In fact the technique is identical. Substituting the coil for the warp strands, the sewing splint for the encircling weft, and the bark ribbon for the quill, we have exactly the same idea.

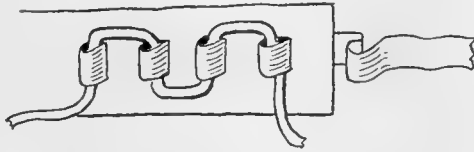


FIG. 112.—Slit embroidery, Koryak, Siberia

The only point of difference lies in the fact that the quillwork may be shoved up close, because the weft is not fixed. In basketry work the weft becomes stationary as soon as it sews the coil. It seems to the writer that it was because of a realization of this difficulty that the basket weaver developed imbrication.

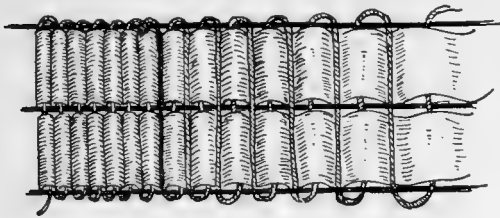


FIG. 113.—Porcupine quill embroidery, Alaska

Undoubtedly the object of imbrication is to cover all the coil stitches rather than only alternate stitches, which is all that beading can accomplish. It being impossible to shove the work together as in quill embroidery so as to conceal the weft

element lying on top of the ribbon, other means had to be devised. It would be most unsatisfactory to allow loops of the bark ribbon to fold back over the exposed stitches as the quills fold over the weft, for it would be extremely difficult to make the folds lie flat, and also, if they did not lie flat, they would soon wear off. It seems very plausible that in trying to conceal the exposed stitch by folding the ribbon back upon it, since they could not shove their work close enough to hide it the women may have hit upon the expedient of catching the fold beneath a second stitch to hold it flat in place. They may have discovered at the same time that the bark ribbon would then as a consequence conceal the stitch just made and that the continued process would leave none of them exposed. This,

however, is only a theory on the part of the writer. Other explanations for the origin of the technique might be found which would be as acceptable.

There is another kind of porcupine-quill work described by Mr. Orchard which is identical with coil sewing in all its essential features. That is the spot-stitch work described by him on pages 11 and 15. Here the thread acts in place of the foundation, the quill as the sewing splint.

At times a strip of rawhide or other padding is placed on top of the skin which is being embroidered and runs along between the two threads. The quill winds about this strip along with the threads during the process of sewing the padding to the skin, and in all essentials the actual method is very like binding the coil.

Another observation which strengthens our suspicion that there has been some historical connection between the ornamentation of clothing in these instances and imbricated basketry was recently made by Mr. Teit,⁷⁰ who says:

I notice two or three points which may have some connection with the question of droppers. First, lines dropping from other lines or from other designs at regular intervals are found in embroidery and painting on the bodies and skirts of women's dresses. Secondly, in fringes of garments, particularly along the bottoms of women's dresses, there are often uncut pieces of fringing at intervals. These pieces are often painted with dots and designs or ornamented with punctures and pinkings. The Indians say that these pieces were sometimes embroidered with quills or beads. I notice the Tahltan and Kaska also have fringing of this kind on both bags and clothes. The Tlingit, Taku, etc., of the interior had the same, but the uncut pieces were usually unornamented. Thirdly, there are long or short flaps of embroidered skin, or, in their place, embroidered bands or stripes which extend from the shoulders of men's shirts and coats. There are generally two in front and two behind, and they often connect with an embroidered or ornamented area on the shoulders.

The sketches of such fringing sent in by Mr. Teit are given in Figure 114. A few of them, for instance, Nos. 1, 4, 6, 10, 12, 13, 14, 15, 16, and 17, bear in the decorated uncut part of the fringe a marked resemblance in design to the vertical stripes and droppers which are frequently used on Lillooet baskets. Knowing that old birch-bark baskets were formerly covered with skin which was bound around the rim, and that to the present day the Apache of our Southwest ornament their burden baskets with fringe of rawhide around the rim and the circumference of the bottom, a theory might be advanced that the skin on the old birchbark baskets was also fringed and that naturally the form of decoration would be taken over from skin garments treated in a similar manner. While this may have been so, it is quite possible, as in the case of the development of imbrication, that other explanations might be offered which would be equally plausible. At least with the present scant amount of real knowledge

⁷⁰ Correspondence.

of the subject we are not justified in formulating a dogmatic statement. Certainly a "dropper" form of decoration is sufficiently unusual and independent of the necessities of construction of the design as well as striking to the eye to account for its direct transference to basketry designs without the medium of skin fringes as applied to baskets.

A still more plausible explanation was offered by one of the informants who had received thorough instruction from her mother and

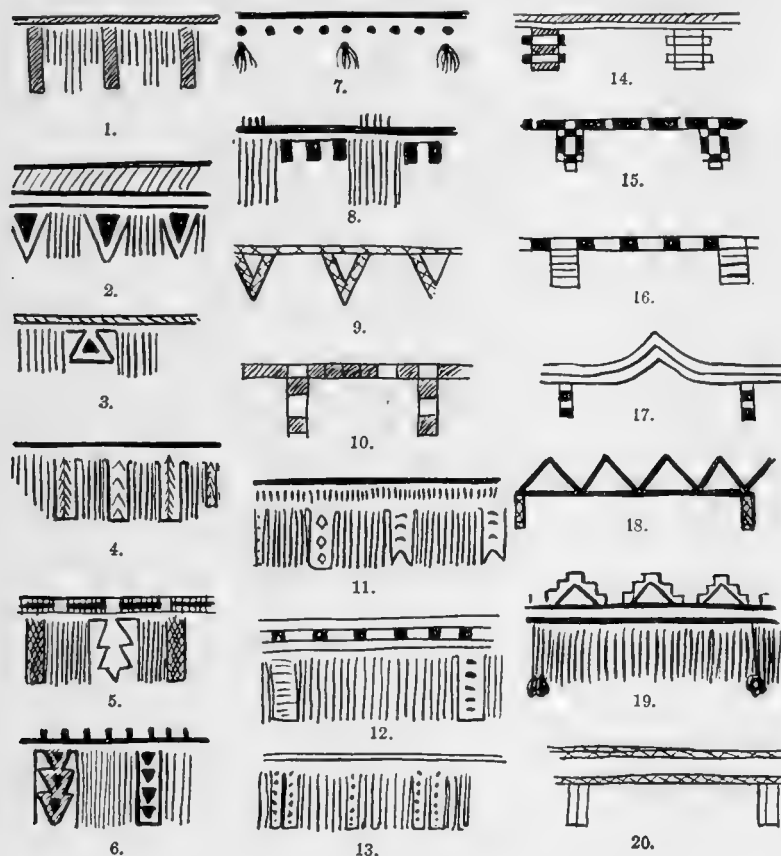


FIG. 114.—Fringes

grandmother. She took an intelligent interest in the art for its own sake, engendered, no doubt, by the common interest of a family of craftswomen. All this lends to her opinions more than usual weight.

She always called the droppers on Lillooet baskets *tsenê'ka* (or hair-flap ornament), and explained her use of this term as follows: She had heard that the droppers were representations of the embroidered flaps of skin which were fastened to the braids of hair on either side of the head on a level with or just below the ears. These flaps were often provided with pendants.

The strength of her argument lies in the fact that so many Lillooet patterns are "head" or "mouth" designs, and that it is with these particular devices that the "droppers" are most frequently used. If she is correct the droppers occupy nearly the proper position that tsenê'ka designs would in relation to the head.

The idea of droppers having once been adopted in some fashion or other, designs from other objects of similar form, similarly embroidered, would rapidly be seized upon from which to borrow new conceptions for basketry decoration.

In all these cases the remarks are more applicable to the Lillooet than to the Thompson. The Lillooet are quite as fond of "fly" patterns as the Thompson. Lillooet and Tlingit basketry designs have many points in common, especially the "droppers," which the Thompson do not use at all. But whether the Lillooet or some other tribe originated imbrication and transferred to their baskets numerous designs from clothing, and particularly from quillwork, is not so important as the apparent fact that it was done somewhere in this region, and that whoever first effected the transfer, the Thompson have given the art its highest development. In regard to the assumption that the transfer of technique and art was from quillwork and clothing to basketry rather than vice versa, it may be remarked that quillwork is known to be very ancient, and that these particular types of technique which have just been discussed are found from the Atlantic to the Pacific. On the other hand the imbrication of basketry is confined to a very small area, comparatively speaking. We know that the embroidery of clothing is more ancient than that of baskets, that beadwork superseded quillwork, that many Indian patterns are avowed representations of beads, and many others are frankly named old embroidery designs.

While absolute dependence may not be placed on the assertions of the people themselves in regard to old-time customs, since memory, which is all that can be relied upon, fails sometimes even under the best conditions, it is interesting to compare the quillwork patterns with those employed on basketry which are called bead or embroidery designs. It is also instructive to study those which are thought to be ancient and which now are practically obsolete, or at least not in common use. It must be remembered that even work considered old by people with only tradition to rely upon may not be so very ancient.

It will be noted that many of these old patterns (fig. 115) are pictures and are mostly executed in single outlines. Practically all of the obsolete ones are of this character. This does not mean to imply that these were the only ancient patterns used. Many others are still as popular as ever, in fact form the majority of designs still employed, and are purely geometric. The people say that the standard designs of the tribe are all old and include such patterns as "arrowhead,"

"arrowpoint," "half arrowhead," "bead," "butterfly," "coil" (horizontal encircling line), "dentalia," "embroidery," "fly," "grave-box," "ladder," "leg," "mouth," "Indian rice," "necklace," "net," "snake," "spot," "standing-points," "star," "step," and "zigzags."

But those now classed as obsolete and rare indicate the modern trend of popular taste, which according to European standards is very gratifying. Among the rare old designs (fig. 116) may be noted

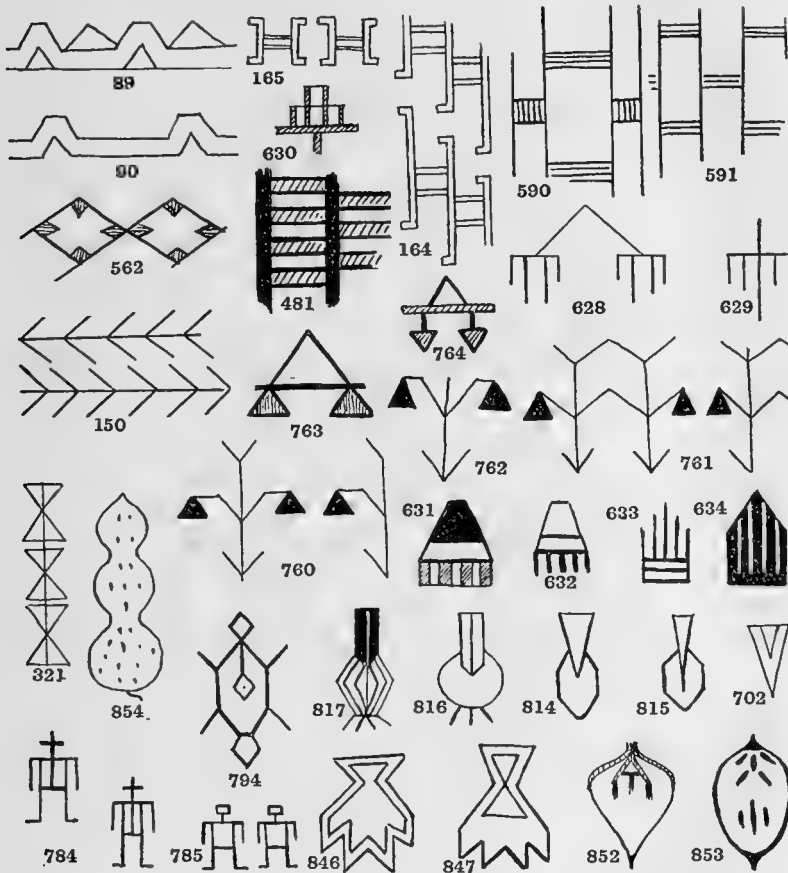


FIG. 115.—Obsolete basket designs, Thompson

three which resemble a part of an old quill pattern (cf. Nos. 683–685, fig. 116, and *e*, fig. 108). Plate 81, Sketch 116, is also interesting as undoubtedly copied from the braided rim of a basket. By no means all of the designs, however, were taken from porcupine-quill embroidery, as we shall see.

It has been indicated that each tribe manufacturing imbricated baskets possesses a more or less typical style of ornamentation, although with the exception of the Klickitat, the burden baskets

of all are somewhat similar in shape. Yet the Salish among themselves have several different types of decoration, most of which are used to some extent by the Thompson, particularly all-over distributions of small designs and the vertical stripe with small figures. These are accompanied by unimbricated backgrounds. The third popular arrangement is of large designs on a single field, with or without imbricated backgrounds. In fact, the Thompson use the single field very commonly.

The Lillooet are distinguished chiefly by two field arrangements and large rectilinear designs, as well as by numerous "droppers."

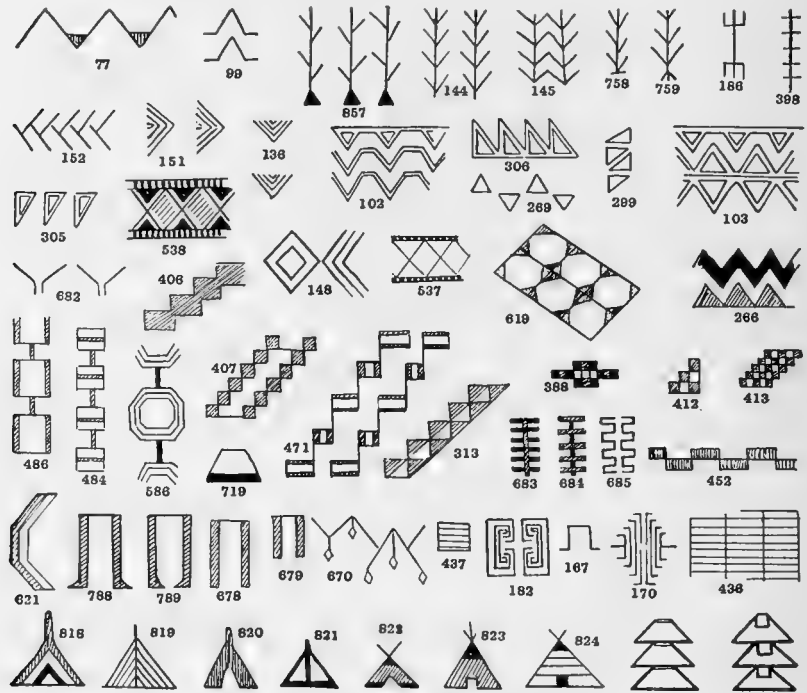


FIG. 116.—Ancient basket designs, Thompson

The Chilcotin, on the other hand, use three fields, the upper and lower of which are alike, the center being unimbricated. Above the rod which encircles the basket near the rim is a fourth narrow field.

The Klickitat are inclined to single-field decoration, and the designs are distributed along horizontal zigzags which extend from base to rim. The zigzags are as compressed as it is possible to make them, an effect which increases the apparent height of the basket.

The Thompson are accustomed to the use of practically all the simple geometric elements and many complicated ones. The Lillooet confine themselves chiefly to rectilinear designs and triangles. Both

are particularly fond of fly or checker patterns. Neither employs the square to any great extent outside of these designs. On the other hand, Chilcotin art is conspicuous for the squares and triangles which compose the simple but effective patterns. Klickitat work is the most florid and rich of any. The horizontal zigzag with its variety of depending smaller designs is particularly well adapted to the round shape of the basket. The art style is here more uniform than with the other tribes and probably on that account far less interesting, but at least one does not encounter such glaring defects as on the elongated shapes from the other regions, which are due, not so much to carelessness on the part of the artist as to the great number of problems and difficulties which arise to confront her on account of the irreconcilable features of technique, shape, and style of designs.

Before discussing the other sources from which the Thompson may have obtained ideas for their highly diversified decorations, it seems expedient to consider the relationships in art and technique which exist between the tribes which surround them and their more distant neighbors.

The various centers where imbrication and decorative art through its means have attained a high degree of development, although similar culturally, are represented by three linguistic families, and historically different settings. The Thompson and Lillooet are Salishan; the Klickitat, Shahaptian; and the Chilcotin, Athapaskan.

The Lillooet, living west of the Thompson, are a little nearer the sea. They have been in contact more or less with the coast Salish and probably from them copied in basketry the rectangular boxes which the coast tribes made of wood. In the matters of the general shape of the baskets, the two-field division of the wall, the droppers, and the lavish use of beading, as well as the peculiar trait of ornamenting three sides and leaving a fourth bare, the Lillooet differ from the Thompson and in some respects show affiliation with the coast tribes. Their large rectangular designs, however, are no longer unique with them, since the Thompson have taken them over to a considerable extent. Those composed of two complementary sections divided by a narrow vertical stripe resemble nothing so much as painted designs of the western plains. The droppers used in the decoration of Tlingit baskets,⁷¹ while not duplicated exactly by the Lillooet on their burden shapes, are sufficiently like them to be worthy of note, especially since only these two tribes have apparently adopted the idea. One design which the Lillooet share with the Tlingit is that given in Figure 105, Sketch 18. (Cf. Thompson design in Fig. 115, Sketch 165.)

⁷¹ G. T. Emmons. *Basketry of the Tlingit*. *Memoirs Am. Mus. Nat. Hist.*, Vol. III, pt. 2, New York, 1903.

The mouth and head devices and various forms of meanders or notches are very common with many of the tribes of the interior of British Columbia and of the coast. The meander seems in its double vertical arrangement to be allied to the old porcupine-quill work pattern. Figure 117 is a design taken from a coast Salish basket in twined weave, which was worked in overlay as was described on page 362 for Skeena River baskets. It is interesting to compare this with Figure 108, *e*; Figure 116, Sketch 685; and Figure 105, Sketch 17, as well as with the Chilcotin designs in Figure 106, Sketch 15, and Figure 107, Sketch *r*, where the pattern is horizontal.

The Chilcotin have a number of designs which are related to those of the Tlingit who live northwest of them across the mountains, particularly those given in Figure 106, Sketches 31, 32, and Figure 107, Sketches *l-q*. On the other hand, they possess many which resemble those so popular among the Thompson and Lillooet. These are

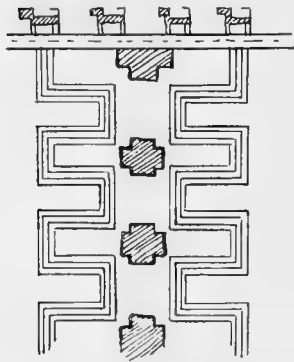


FIG. 117.—Designs from coast Salish baskets

sketches 8, 22, 26, Figure 106, and *g*, Figure 107, which may be compared with the analogous sketches in the Thompson table. Such designs are found with comparative frequency on California basketry and in the "droppers" of the Tlingit. But they evidently date back farther than basketry, for they appear on the painted or porcupine quill embroidered fringes of skin garments (fig. 114) and in great numbers and infinite variety on the painted parflèches and beadwork of the Plains. A comparison of the designs just mentioned with those given by Doctor Wissler in "The Decorative Art of the Sioux Indians"⁷² and by Doctor Kroeber in his paper on the Arapaho⁷³ will reveal striking similarities. When it is remembered how the Plains tribes traveled, often far to the west, especially after adopting the horse as a means of conveyance, and that the parflèches which always accompanied these nomads as trunks, fastened to the saddle, were brightly painted in bold designs and the garments similarly embroidered with multicolored beads, it would be indeed surprising if the western peoples were not attracted by these gay bits of color and failed to be impressed with designs which stood out so sharply on contrasting backgrounds. Thus it seems that the basket weavers of the west owe many of the patterns composed of series and various arrangements of triangles to their Plains brethren to the east.

⁷² Clark Wissler. The Decorative Art of the Sioux Indians. Bull. Am. Mus. Nat. Hist., Vol. XVIII, pp. 231-277.

⁷³ A. L. Kroeber. The Arapaho. Bull. Am. Mus. Nat. Hist., Vol. XVIII, pp. 36-150.

The Klickitat have preserved a remarkable conservatism in their art. Originally, they probably did not lie in the path of these currents and countercurrents of travel, since they dwelt far to the south. They were not always occupied with coil work or imbrication, but learned the latter technique undoubtedly after their migration northward. Formerly they were in contact with Californian tribes, or at least with their products, as shown by the designs which, except on some of their twined bags, are almost entirely diagonal and in character closely akin to Californian types of decoration. Coast influence is felt in a still different type of bag, namely, that plaited of strips of cedar bark.

A comparison of the Klickitat twined work with that of California, and of Klickitat imbrication with that of the Salish tribes, proves beyond a doubt their former connections, even were these suppositions unsubstantiated by tradition. Klickitat twining is on a par with that of Californian and coast origin, but Klickitat imbrication is noticeably coarser and more uneven than that produced by the majority of Salishan tribes, while a comparison of the two types of technique as produced by the Klickitat alone shows plainly that imbrication is with them the newer. As in technique, so in decorative art, the Klickitat have drawn from three sources, but the conditions under which the different styles appear are very peculiar. The California designs and arrangements predominate on both imbricated baskets and twined bags, but the latter show a queer mixture of Californian and Plains influence. Considering the former location of the tribe, this is not altogether unexpected and at the same time extremely interesting because of the way in which it manifests itself. For the sake of clearness the bags will be discussed first separately.

Some of these are illustrated in Plates 63-65. In the matter of design arrangement, horizontal bands suggest California styles while a vertical distribution, as in Plates 64, *h*, and 65, *f*, are rather a northern feature. Plains design elements, however, in addition to their ordinary vertical alignment, are placed in horizontal zones on some bags, after the California method. (Pl. 65, *b*.) On the other hand, California elements and consequently patterns retain their individuality chiefly because element and pattern seem to belong together in particular groupings, especially along diagonal lines or in horizontal zones, and do not lend themselves readily to vertical treatment, although theoretically it would be possible to break some of them up and rearrange them in vertical order. In spite of their widespread adoption of Plains designs, and their rearrangement of these according to their own styles of distribution, the Klickitat seem never to have attempted to combine them on the same bag with their own designs. On the contrary the two styles are quite distinct. The plaited bags are an almost negligible quantity and their designs are neither essen-

tially Klickitat or Californian, nor yet of the Plains, but seem to have been carried along with the technique, as they resemble the patterns on coast bags of similar weave. There are three shapes of Klickitat bags, those square and flat (pls. 64, *a, b, e, f, g, h*; 65, *a-d*), those with rounding creased bottoms (pls. 63, *b, d-h*; 64, *d, e*; 65, *e, f*; 66, *c, d*), and round bags with flat round bottoms, which approach a basket form. (Pl. 66, *l, m, n*.)

On their imbricated specimens the Klickitat have adhered almost entirely to Californian diagonal effects and designs with more artistic good sense than many other tribes of weavers manifest. The predominating design of the Klickitat is that called "leg" or "foot" among the Thompson. In California it is sometimes known as the "quail plume," or often, when ranged along the diagonal sides of a zigzag or triangle, the whole pattern may be called "pine cone." This the Klickitat have developed with every conceivable variation as well as another pattern which consists of a zigzag band, one edge of which is straight, the other serrated. Thus it is that Klickitat art possesses a homogeneity almost unsurpassed by the other basket-making tribes. Even though two styles of art come together in their twined bags, they are never combined on the same piece of work after the fashion of the Thompson. Like many other tribes, the Klickitat are introducing realistic figures into their more modern specimens in a way which is quite their own. A very interesting study could be made of the realistic basketry designs of the different tribes, for each has its characteristic ideas on these points. Plates 63-75 give some other Klickitat baskets and also work of the Salishan Skokomish and Chimakuan Quileute which offer a good opportunity for comparing the twined and imbricated specimens, decorated with similar designs.

Having thus attempted to outline roughly the relations which the tribes surrounding the Thompson had with each other in regard to their art development, it is now perhaps a little less difficult to discuss the Thompson themselves. We have seen that in order to gain a proper perspective of their work and to obtain an idea, however vague, of the history of its decoration, it is not sufficient to compare the Thompson technique and designs with those of other tribes who also imbricate, but it is necessary rather to go much farther and to compare them with the decorative art of peoples far afield, who have woven baskets in entirely different types of technique or who possibly did not manufacture baskets at all, but painted or burned their designs on leather, or embroidered them by means of quills or beads on skin garments.

In a comparison of this sort the student is struck by the great wealth of the Thompson art, not only in regard to methods of arrangement, but also as to various forms of elements, together with

their varied surface treatment by means of alternations in color. Considering the great variety of patterns produced by the Thompson, it is a surprising fact that so few relationships between their art and the typical work of the other centers where imbrication is developed are evident. We have seen that the Klickitat, who possess typical Californian designs, execute them most conspicuously in the Salish technique, but the Salish have not adopted any of the Klickitat styles, although their twined bags resemble those of the Klickitat which are ornamented with Plains designs. We have seen that the Lillooet, who with the Thompson may be considered as the chief exponents of imbrication, have many ideas of decoration in common with the Tlingit. They execute false embroidery patterns in imbrication, and they have even to a very limited extent attempted to make false embroidery themselves. Again, Skeena River (?) designs in overlay are found elsewhere in several other types of technique.

The Thompson and Lillooet possess many patterns in common. Some of these are presumably of Lillooet origin, but they are not the same as those common to the Lillooet and Tlingit. The Chilcotin and Tlingit also use patterns which are more or less alike, although, as in the case of the Lillooet and Tlingit, executed in different styles of technique.

While the Chilcotin and Thompson employ some similar decorative devices the Thompson use practically no designs which the Chilcotin seem to have in common with the typical Tlingit patterns, nor yet those styles which the Chilcotin have developed and which are characteristic of them.

The lesser Salishan tribes making imbricated baskets, of whom it will be remembered there are a great number, probably have many designs in common with the Thompson which were no doubt developed in the region and many purely local features are common to the Lillooet and Thompson. Outside of this, in most respects, the Thompson seem to have occupied the place of the eddy in the whirlpool of travel and intercourse, and to have erected their art on the foundation of old Plains designs. Now and then a stray pattern from some region on the outside has come in, such as the "leg" design, which while very popular in both Salish and California regions has received entirely different treatment at the hands of the two sets of artists.

Among themselves the Thompson have developed their art to an astonishing degree. All the styles of arrangement which prevail elsewhere are found here also, but it would seem that this fact must be ascribed to the ingenuity and inventiveness of the people themselves rather than to borrowed ideas, since the design elements which would naturally accompany a typical arrangement from another tribe would scarcely fail to appear at least occasionally if borrowing

had occurred. It will be remembered that the women of the Utā'mqt and Lytton bands are particularly fine craftswomen and unusually clever inventors, among whom there exists a constant endeavor to effect new combinations. To them probably is due the endless variety of patterns which prevail at the present time, mostly based on the old strata of designs. In addition, many new and utterly different ideas are continually being carried out. Of late years new realistic designs, elaborately wrought and striking in their realism, are occasionally seen. Notable among them are the beautiful butterfly patterns. Articles of white manufacture, such as oilcloth, borders of printed handkerchiefs, calico, etc., are eagerly seized as affording new conceptions for patterns. The weavers have even gone so far as to adopt the outlines of the white man's window and door. But all the while there seems to be still an infiltration of patterns from the Plains. Figures 118 and 119 are collections from the sketches of designs which have been described as new by the informants. Among them will be noted many which show Plains affiliation, such as 416-419, 599-603, others which are of native origin, such as 690, and some taken from oilcloth or other articles introduced by the white man. It will be noted that some of these designs also figured among those elsewhere declared to be old, so that differences of opinion and uncertainty of knowledge undoubtedly exist to a considerable degree among the people themselves. But on the whole the divisions into old and new are probably correct, even though they include by no means all of the designs which could be so classified.

The richness of Thompson imagination and inventive genius is manifested also in the variety and character of the interpretations applied to the designs, often, indeed, to the same figure, and in the ways in which the same form may be treated with color or surface subdivision. The technical exactness and powers of observation possessed by the people are made evident by the almost unlimited number of descriptive terms applied to variations of designs, minute differences in structure and surface treatment.

It is rather interesting to compare the character of Thompson interpretations with those noted by Barrett and Kroeber as in use in California in order to see if among the Thompson a prevailing tendency exists toward representing particular objects or classes of objects and whether it corresponds to those tendencies found elsewhere.

According to this point of view, the Thompson designs fall into six groups. These are: I, Natural phenomena; II, Natural objects; III, Artificial objects; IV, Plants; V, Animals, birds, and their parts; VI, Geometric or descriptive. Disregarding the descriptive names applied to designs, such as "scattered," "leaning," "encircling," etc., which are almost legion and are applied rather on account of the position or arrangement of the design than because of

what it is considered to represent, the animal and bird patterns are by far the most numerous. The majority of these are geometric in form or highly conventionalized. It is interesting that most of the life forms which occur, such as birds and butterflies, are depicted both in realistic and in purely geometric or conventionalized patterns.

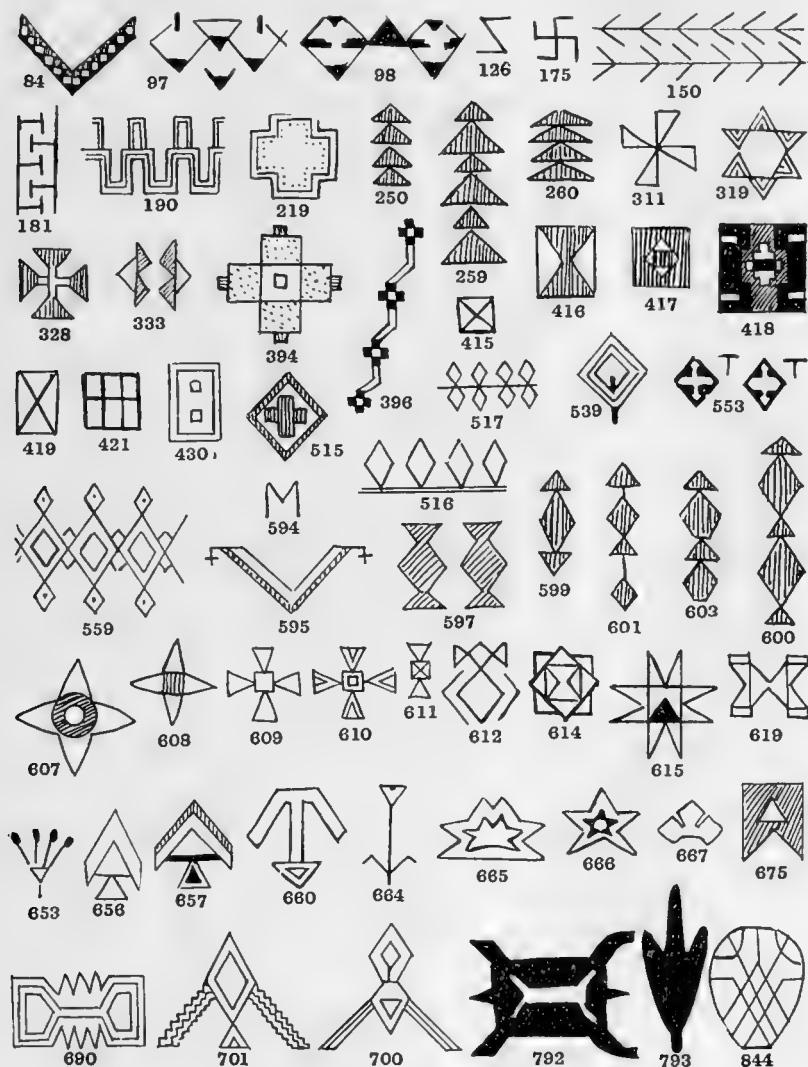


FIG. 118.—New basket designs, Thompson

The different birds represented are quite clearly distinguishable, either in realistic or conventional art, by some peculiarity such as long wings (flying goose), exaggerated tail (swallow), short thick body (crow), or spread wings and tail (eagle). The varieties of snakes are less clearly differentiated, except the bull snake and striped

snake. The former is always characterized by broad black and white bands or checks encircling the body, the latter by lengthwise stripes. The rattlesnake is elaborately marked but the difference between it and the bull snake is not always evident.

There are two varieties of caterpillars noted, the ordinary type and a hairy species, but no constant difference in the method of representation is observable.

The facts that many animals which are portrayed by realistic sketches are also represented by conventional and even purely geometric forms, that a number of others appear in both realistic and conventional settings, while a still larger number of animals, and particularly their parts, are associated only with geometric figures, do not necessarily prove that the tendency of representative art is to change from the realistic toward the geometric. On the contrary, the numerous unrelated interpretations given to geometric

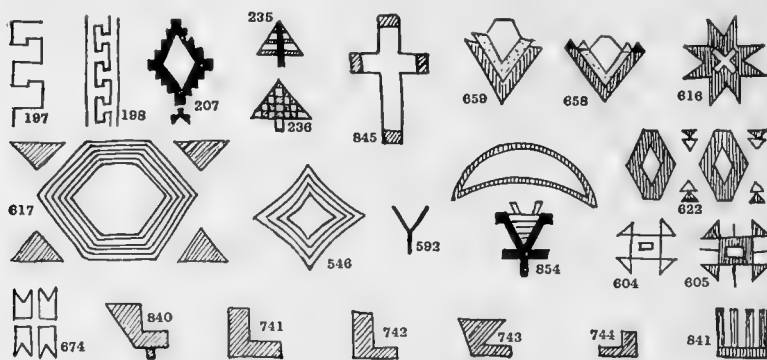


FIG. 119.—New basket designs, Thompson

figures, together with the fact that realistic art is the highest and therefore necessarily latest development in basketry decoration because it is the most difficult, would argue for the other direction in development. It does not seem safe, however, to assume either tendency as general. Geometric forms are suggestive, and once a resemblance becomes apparent, are often, no doubt, elaborated into more realistic representations, as fancy dictates; on the other hand, realistic art, used for purposes of decoration, does tend to become conventional and even geometric.

The animal forms commonly appearing in Thompson art are those with which the people are most familiar, the beaver, otter, deer, dog, horse, panther, fish, lizard, snake, and human beings. The bird forms are eagle, swallow, goose, grouse, owl, duck and crow; the insects—butterflies, flies, dragonfly, beetle, grasshopper, spider, caterpillar, and woodworm. The people are fond of depicting only parts of some creatures. For instance, the bear is never portrayed as an entire figure but is indicated merely by the foot or teeth. The

beaver and otter are usually represented only by their stretched pelts, the panther by its head, the mountain sheep by its horns, the fish by its backbone, the grouse by its tracks, the deer not only as an entire figure, sometimes caught in a net, but also by its hoof, track, ears, head or horns. Birds, butterflies, and other insects are represented frequently only by the wings, but on account of the surface treatment of the triangular figures which usually serve in this connection, it is generally possible to recognize them. The grasshopper is more often indicated by its leg or elbow than as an entire form. A number of parts of animals and human beings appear which apparently have no connection with any particular object, such as simply head, eye, tooth, mouth, heart, hand, finger, hand pointing, leg, foot, bent leg, bent back, broken back, rib, etc. There is a strong tendency to create diminutive designs of animals which are called "little dog," "little deer," "little beaver," etc. These are simply *tlēē'ka* designs which have become standardized and arranged so that they are classed as real designs.

Artificial objects are second in popularity and variety as suggestions for designs. The majority are purely geometric, whatever may be the actual shape of the object. In a few cases the general outlines resemble certain objects, such as the triangle the arrowhead, the square or rectangle the bead, the series of triangles notched ladder poles. In some cases it is difficult to decide whether the design is a realistic sketch of a geometrically formed object, such as the root digger T, fishhook, Figure 122 (1), hammer, Figure 122 (2), or an instance of reading in a meaning which has been generally selected because of marked resemblance to a given object. In most cases the likeness is purely superficial and rather obscure, and the number of interpretations of utterly unrelated character often applied to the same designs strengthen the impression that the figures themselves never have been more realistic than at present.

The list of these artificial objects shows a rather peculiar selection, but on the whole comprises those which enter most vitally into the life of the people.

The plants occupy the third place in number of kinds represented, as well, perhaps, as in frequency of occurrence, and comprise trees and shrubs (not differentiated), leaves, several varieties of edible roots, an edible cactus, berries, and five varieties of flowers. The pine cone also figures as a very old design. Practically all of the patterns are geometric or purely conventional and many of them have only one interpretation. The maple leaf and edible cactus, however, appear as almost realistic delineations. The newer baskets are occasionally decorated with very beautifully executed floral designs. (Pl. 40, c, e.)

Geometric design names, if we except the descriptive terms, are few in number but of rather frequent occurrence. Such terms as circle, half circle, coil, spiral, points, notch, stripe, scratch, zigzag, and cross are all that appear. Modified by descriptive terms, these design names become the most numerous of any. The list of modifying terms and their Salish equivalents as given in the appendix will illustrate how exactly these patterns may be described (see p. 400 et seq.).

Very few natural objects and natural phenomena appear as designs and they are all purely geometric figures. The cloud and star patterns and their numerous variations are very popular. Sun, moon, hail, snow, lightning, and rainbow are rather rare. Mountains, lakes, waves, and trails are the only natural objects which figure as designs on baskets, but they are much used. Probably mountain patterns are as well liked and as frequently employed as any in the entire category.

In addition to these six classes of designs there are a number of general patterns composed of combinations of elements or small designs. The names applied in such cases are practically identical with the geometric descriptive terms. Usually they are given to any combinations which they fitly describe, but some individuals have a tendency to restrict their use to particular arrangements with which they are most familiar.

It has already been stated that disregarding the descriptive names for designs, animal patterns are the most numerous of any, while plants are comparatively rare. This seems to be the case in the art of the majority of very primitive tribes as well as of many which have progressed to much higher levels of culture. It can not be said that the reason for this as intimated by Grosse⁷⁴ is always that primitive man is first of all a hunter and food gatherer, and therefore interested primarily in animal life, or that it is not until people adopt agriculture that their attention is awakened to the importance of plant life, which then begins to influence their thoughts and therefore their art. Nevertheless, it is a very suggestive idea which might be substantiated by more detailed investigation.

A glance at the lists of design names employed by the Thompson and by the California tribes reveals one peculiar parallel. This is the use of the term "grasshopper elbow," but the designs used are not the same, except that they present sharp angles. There are a few other terms common to both regions, but they are used over practically the same region where the common strata of designs occurs. One, "bear foot," however, is represented by different designs in the two areas. Each tribe reflects in its art something of its environment. This is but natural. Thus the California people represent turtles, starfish, crabs, and ants, as well

⁷⁴ Ernst Grosse, *The Beginnings of Art*, Appleton & Co., New York, 1914, p. 118.

as acorns, while the Thompson depict the beaver, snowshoe, animal traps, dentalia, moss cake, etc. The Thompson represent a far greater variety of artificial and natural objects than do any of the Californian tribes.

That there is no well-defined symbolism among the Thompson must have been apparent in what has already been said. A few geometric patterns, like the arrowhead, generally receive the same interpretation by all the people. Aside from these, practically all geometric figures represent a variety of objects, while these in turn are often depicted by more than one geometric form, but it all depends on some similarity between object and design which is recognized at the time by the person interpreting. There is no color symbolism except in the case of rain or snow and even realism in color is often entirely disregarded.

I⁷⁵ add a few general considerations to the summary and conclusions written by Miss Roberts.

The area in which imbricated basketry is made will be seen on the accompanying map. It stretches along the eastern side of the Cascade Range, beginning with the Chilcotin and following south through the territory of the Thompson as far as Wenatchi and Cowlitz.

The map shows that important changes of location have occurred in the whole area since the year 1800 or a little before that time. The Klickitat, who at present participate in the making of imbricated basketry, lived at that time south of the Columbia River. Mr. Teit obtained his information repeatedly from the tribes on the middle Columbia River, particularly from the Columbia, a subdivision of the Salish. It is remarkable that according to Melville Jacobs the Taitnapam, who live on the upper region of the Cowlitz River west of the Cascades and who are part of the Yakima (that is, Klickitat), claim that they have always held the region which they inhabit at the present time. The claims of the interior Salish in regard to the migrations of the Yakima and Klickitat are borne out by linguistic evidence. The Cowlitz and the upper Chehalis, who are neighbors, speak practically the same dialect. The vocabulary and grammatical structure are very much alike. The only fundamental difference between the two dialects is that where the Cowlitz use a *k* the Upper Chehalis use *tc*. In this respect the latter agree with all the other coast dialects as far north as Comox. All the dialects of the interior as far east as Spokane and Kalispel use the *k* forms, while farther to the east the *tc* forms are found. On the map the area in which the *k* forms are used is indicated by a stipple band. The use of the *k* forms by the Cowlitz can be understood only on the basis of an intimate relation between them and their eastern neigh-

⁷⁵ By Franz Boas.

bors. I believe that the reason why the Taitnapam claim to be indigenous must be looked for in the gradual settlement of this part of the country by the Yakima. According to the description given to Mr. Teit, it seems very likely that the Yakima language, to which the Taitnapam belongs, gradually gained the ascendancy over the Salish dialect, so that in all probability the tribe, who live at the present time west of the Cascades, are the original Salish tribe who have gradually given up their language and speak a Yakima dialect now. This would account for the absence of any knowledge of migrations.

Whatever kind of basketry these tribes may have made in earlier times must have been strongly under the influence of the adjoining southern Oregonian and Californian tribes, and this may account for the common occurrence of the Californian motifs on their baskets.

Miss Roberts has called attention to the possible relation of imbricated basketry motifs to those of the Plains. In regard to this problem it seems important to remember that in the eighteenth century the Salish tribes, the Shoshoni and Kutenai, extended east of the mountains into the Plains and that their contacts with the eastern tribes were very weak. On the other hand it seems that Plains motifs passed at an early period over the mountains into the southern parts of the plateaus which are inhabited by the Shoshoni and their relatives, and it may well be that the Plains motifs found their way into British Columbia by this route. The occurrence of quadrilateral designs divided by a central band, which are highly characteristic of Plains Indians art and which occur frequently in the art of the western plateaus, is presumably an indication of this type of cultural relation. This motif is found in decorative forms consisting of a series of connected diamonds divided in two by a central stripe; and in the rectangular designs, found particularly on Lillooet basketry, divided in the center by an undecorated stripe and generally interpreted as "head design" (see pls. 19, *a*; 20, *a*; 29, *c*).

The technical relation between beading and imbrication can hardly be doubted. The method of overlaying the coil with decorative material is the same in both cases. The stimulus that may have led to imbrication is the desire to obtain continuous surfaces of the same color. This may be done in beading by overlaying a number of stitches with the ornamental material, as is done in weaving. On account of the weakness of the ornamental grass or bark, work decorated in this way will quickly deteriorate because the long strips of overlaid material would tear easily. By catching the overlay in each stitch of coiling this difficulty is obviated because the overlay is thus held firmly to the surface of the basket.

Beading occurs commonly on the coiled rims of birch-bark baskets both in America and Asia. It leads to a modest development of

patterns analogous to forms developed in weaving. In birch-bark basketry it is strictly confined to the rim; in coiled basketry it is easily transferred to the body of the walls and results largely in horizontal bands of single stitches or of starlike figures. Simple zigzags and other forms consisting of single lines may also occur. It may well be that the frequent occurrence of the imbricated star (see Sketches 399-401, pl. 86) is an immediate transfer from beading to imbrication. It is more easily achieved in beading than in imbrication.

The question arises how the desire for continuous surface decoration may have arisen.

Both the Tlingit twined baskets and the Lillooet imbricated work have the lower part of the basket bare. The decoration is essentially confined to the upper portion of the walls, although it covers a large part of the basket. It is quite conceivable that we may have here an encroachment of a rim design upon the body of the basket, analogous to similar encroachments that have occurred in other areas.⁷⁶ Mr. Teit and Miss Roberts have already pointed out that the custom of covering the upper part of birch-bark baskets with decorated skin may have helped in the development of this tendency.

Birch-bark baskets as well as woven baskets require special treatment of the rim which protects it and holds it together. The stitches which hold the strengthening withe to the rim must be of different lengths in order to avoid the tearing of the bark. The regular arrangement of these stitches produces an ornamental effect. The extension of this technical ornamentation may have led to the encroachment of the decoration over the upper part of the basket.

The fundamental development of the ornamentation must be considered in connection with the form of the basket. We have pointed out repeatedly that coiling and angular forms are incongruous. Simple coiling results in circular or oval forms. The production of angular forms seems to require a foreign stimulus. We must remember that the fishing tribes of the northwest coast and of the plateaus are much more stable in their habits than the hunting tribes of the plains or those in the more southern plateaus, the Shoshoni and their relatives. Hence receptacles for storage are much more important among them than among other tribes. Clothing, dried fish, berry cakes, and only to a limited extent seeds are stored. Long objects are best stored in rectangular receptacles like the trunk baskets of the Lillooet and Thompson, the boxes of the coast Indians, and the parflèches of the Plains Indians. The difference in the kind of material to be stored may account for the prevalence of round forms in northern California. It seems to me likely that the stimulus for the production of angular forms may have been given by the need

⁷⁶ See F. Adama van Schellema, "Die altnordische Kunst," pp. 63 et seq.

for rectangular trunks, combined with the knowledge of these forms produced in hide by both the Plains and Plateau Indians and by the wooden and bark boxes of the coast Indians.

This argument, however, does not account for the angular forms of the burden baskets. Mr. Teit and Miss Roberts have pointed out that they do not roll so easily when carried on pack horses but this argument does not appeal to me strongly, because high cylindrical baskets would be much more serviceable for this purpose. Stiff, conical baskets do not lend themselves to horseback transportation; soft bags would be much more serviceable. Furthermore, the burden baskets are generally provided with packstraps and are intended for transportation on the back of man. For this purpose one flat side rests on the back of the carrier, which is a decided advantage. The coast Indians attain this end by building the twined baskets between four rather stout corner withes which determine the general form.⁷⁷

The conclusion that the angular forms have not been developed without a foreign stimulus is strengthened by the type of decoration applied to the round coiled baskets which are most readily decorated with horizontal or diagonal patterns. Diagonal patterns, on the other hand, do not fit baskets with angular cross section. If, nevertheless, we find that some of the angular baskets are decorated in this manner, we may assume that the motif has been transferred from a basket without corners to one with corners.

The difficulties involved in producing vertical lines have been fully set forth in our discussion and have been worked out in detail by Doctor Haeberlin. Judging from the similarity between the vertical bands and porcupine quill work, and also with the patterns found on woven packstraps and belts, it seems plausible that the knowledge of these two types of technique and their transfer to baskets may have resulted in the present forms.

Their application to the flaring basket of angular cross section has led to serious difficulties. On account of the tendency of lines intended to be vertical to lean to the left, a large bare field originates in the right-hand upper corner which distorts the balance of the decoration. The basket maker endeavors to overcome this difficulty by applying "fillers." The variety of these and the lack of a uniform system of treatment show that no definite pattern for the handling of the situation has developed.

The detailed information on the scope of forms made by a number of basket weavers shows that the range of individual invention is strictly limited by the traditional style. This is true both of the forms of the baskets and of their decorations. Observation of the

⁷⁷ See Jesup Expedition, Vol. V, fig. 79, p. 385.

baskets leaves us with the impression that certain standard forms are attempted that might have been formulated in definite numerical relations. The tabulations given on pages 416 et seq. and summarized by Miss Roberts on pages 212-223 show that this is true in a very general way only. We might say that the form is felt, rather than obtained by deliberate measurements. It is interesting to note that other attempts to determine characteristic forms metrically have led to the same results. I have measured a large number of wooden boxes of the north Pacific coast which gave a definite impression of uniformity of proportions. I have not been able to find any proportion that could be designated as the standard. Dr. Ruth Bunzel has found the same in the pottery of the Zuñi Indians and Dr. Gladys A. Reichard has made the same observation in regard to the dishes of the Admiralty Islands.

Designs which are claimed by the makers as their own inventions are generally slight modifications of current forms. This is even true of the so-called "dream designs." I presume when the Indians use the term "dream design," which is found not only on the western plateaus but also among the Indians of the Plains, they mean that the design appears to them as an original invention. Whether it actually appeared in a dream or whether it is a visual image is not certain. It is certainly striking that none of the designs of the Thompson Indians resemble those of the Klickitat and that none of the new inventions follow Klickitat lines. The power of invention of the artist is obviously under the control of tradition.

In the long series of design names collected by Mr. Teit and brought together in Plates 78-94, we may recognize that a large number are merely descriptions, while others may be considered as loose designations of forms. The great variety of names applied to the same form indicate clearly that we are not dealing with designs which could in any way be interpreted as conventionalized representations, but that we are merely dealing with descriptions based on a comparison between the geometric form and some object. This, of course, applies only to the true geometrical designs, not to the obvious representations of animals and of plants.

The general tendency of the natives is well illustrated by the design on a soft bag represented by Farrand,⁷⁸ which was purchased by a Thompson woman from one of the southeastern tribes. The series of connected diamonds appealed to her, according to the interpretative tendencies of the Thompson people, as a series of lakes. In order to bring out the idea more clearly she added small embroideries representing birds flying toward the lakes.

The general tendency of the Thompson is similar to that found among the California Indians. They have a large number of design names without, however, attaching to a definite form a single term.

⁷⁸ Livingston Farrand, *Basketry Designs of the Salish Indians*, Jesup Expedition, Vol. I, pl. 23, fig. 1.

The nomenclature is at the present time still highly variable. There is no indication whatever that the terminology corresponds to any kind of symbolic meaning.

In this respect the contrast between basket designs and rock painting, as described by Mr. Teit, is quite striking.⁷⁹ The making of the design is connected with certain ceremonials and they must be interpreted as crude pictographic representations. The forms which they attain may be influenced to a certain extent by decorative forms employed in basketry, painting, or carving; but their existence does not prove that the decorative elements applied in basketry are derived from symbolic prototypes.

⁷⁹The rock paintings have a symbolic significance and the design is understood by the people.

APPENDIX

The following list of terms relates to basket making in all its different aspects. The terms are given in Mr. Teit's orthography, which is not quite accurate. All the terms belong to the Thompson dialect.

INDIAN TERMS FOR PREPARED MATERIALS

komeɣwô'p-----	Roots of cedar (common name for roots of a tree).
.slii'kenten-----	Cortex of cedar roots (often used for tying bundles of splints).
kwosi'ek-----	Splints of outside parts of cedar roots next the cortex (often used for sewing bottoms of baskets).
.sxii'tsa-----	Outside part of sheath removed from grass stems when preparing them.
pekla'n, päklä'n, tū'ex-----	Bark of the bird cherry (these are special terms for the bark of this particular tree).
kwo.li'n-----	Birch bark (sometimes used in coiled basketry).
.lakai.tx, full-grown; .nkōetei.tx koût, young.	Bulrush (sometimes used in coiled basketry).
tlënë'.lt, full-grown; tselū't, young.	Tule (sometimes used in coiled basketry).
slō'ats (inside bark of cedar)-----	These are special cedar terms. The Thompson did not use these parts in basketry.
sikwa'm (outside bark of cedar)---	
.ntüä'iuk (cambium layer)-----	These terms are common for parts of any tree. Used in basketry by the Thompson.
kai.i'tsa (sapwood)-----	
.nkemēltsi (heart)-----	

INDIAN TERMS FOR PROCESSES OF PREPARATION

kethwo'pem-----	To cut or collect grass for stems; to cut or collect roots.
kethwo'pep-----	The gathering or cutting of grass; grass to be cut.
.skethwôp-----	Grass already cut (from ski'tx, to cut off; sketū'x ^a , cut off short).
sekā'usem-----	To split grass stems (with point of awl) before imbricating (from cēkuem, to split).
kia'nnsem-----	To press or smooth grass stems before imbricating.
co'xex-----	To split or work up roots into fine splints.
tcuwani'sem-----	To even the edges of splints with awl or knife by splitting off. Term also applied to grass and bark when treated thus.
kwaneni'sem, from kwanem, to soak.	To soak grass, bark, splints, etc.

INDIAN TERMS FOR PREPARED MATERIALS

nho'itlexen	Grass (any kind) prepared for basket making.
komeā'ux, kumiā'ux	Prepared roots.
.sxii'tsa	Outside part or sheath removed from grass stems when preparing them.
.npi.ā'usken tek tū'ex	One bundle or package of cherry bark.
.nsi.ā'usken tek komiā'uix	Two bundles of splints (especially sewing splints), enough for ordinary sized burden basket.
.szā'nem, viz, coil instead of splints	Coil splints.
.nyipami'n, from .syi'p, seized or bound tightly.	The sewing splint.
.nkatlā'usken tek .nhoitlexen	Three bundles of grass stems.
pekla'n, pākla'n, tūex	Bark of the bird cherry (used for imbrication).
kwo.ī'n	Birch bark.

TECHNICAL DESCRIPTIVE TERMS

English	Salish	Remarks
Coiled basketry	.skū'x	
Flat coiled or slat basketry	.sxenē'iemox .sxenxenē'iemex .sxenexē'iemex	Meaning square, angular, with corners
Hofe made by the awl, (also stitch)	.nhapti'n .nhapti'n .nhapeti'n	From .shp or .shap, pierced
Stitching or sewing	.nyipi'kenten	From .syi'p, seized or bound tightly
Ordinary sewing or furcation	.nax.pī'ken .naxpēkekenement-wā'ux ^u	
Furcated sewing or bifurcation	.nhapiken .nhapēkekenement-wā'ux ^u	From .sha'p, pierced To furcate or pierce each other
Irregularly furcated stitches	.nsi'utcen .nsiutcenemtwā'ux	From .ssi'ū, out of line The reflexive term
A furcation(?)	.nhapi'kenten?	
Interlocking stitches passing between two others, not furcating	.ntetoxtcinemtwa'ux	From textox't, straight, tē'tox, to direct The reflexive term
Medial sewing	.s.nlūx.p	From .siū'x, threaded, introduced
Close stitching	.stokā'ist	From .stō'k, .stū'k, closed
Loose, open stitching	.syē'xiyexest	From .syē'x, having open spaces
Rigid basketry	kwetskwetsā'ist	From kwitskwī'tst, rigid, stiff
Flexible basketry	lepalepā'ist	Flexible, pliable
Thin basketry	.ntexaxi'xest	Diminutive of texi'xat, thin
Fine work (narrow thin coils and stitches)	texi'.xat tek kei'ix	Fine narrow hand
Thick basketry	.nzū'iest, .nzū'.ist	From zū'it, thick
Coarse work, thick coils and stitches	zū'it tek kei'ix	Thick coarse hand

TECHNICAL DESCRIPTIVE TERMS—Continued

English	Salish	Remarks
Basketry with an even smooth surface	.stcuwesei'.st	From .stcuwé's, even, all equal in size This term is also used to describe baskets without corners
Bumpy, uneven basket walls	.sqaipā'us	Literally drawn in, tightened; from .sqaipā'us, wearing a belt; qai.pā'-usten, belt
Basket or coils made of splints from outside of cedar roots	{.snettlā'us .stsūx _w ā'us .sntsūx.pāus .npipāken	Terms for drawn in, narrow rowed The coils are rather wide
Flat coils	.nēyutā'ist	From ē'yut, used by Lower Lillooet for surface; also applied to basket made of such coils
Bottom commenced with a knot	{.n.a.tca'p {.nhā.tcāp	From .srā'tc, fastened, tied; in reference to a knot
Bottom commenced with twining or wrapping of the kind called .swettkaii	.nwettkai.a'p	From wettkai'in, to pry
Bottom commenced with simple wrapping	.nyiika'p	From .syi'ik, wrapped
Basket with bottom begun with simple wrapping	.nyiikap.p	
Bottom of a continuous spiral	.s.nyiikā'p	
Bottom commenced with a folded or doubled end	.npi.é'p	From pi, one
Bottom of coil folded back and forth	.npenāusa'p	From penā'us, folded back
Slat bottom	.npan.a'p	From .spa'n, folded; pa'nt, return or turn back
Slat bottom where slats are joined by sewing	.nhai.tca'p	From .sxa'its, wood
Slat bottom where slats are woven together	.nku.xwa'p	From .skū'x, coiled basketry and sewing
Bottom of heavy splints taken from the outside of cedar roots	.nketza'p	From .skí'ts, .skitz, woven or twined
Loopwork or openwork basket walls	.s.npipā.kēna'p	
Plain rim	.s.nhahetlī'ken	From .shahitl, pinked, gnawed, serrated
Braided rim	kumkumteci'n	From k _w u'mk _w umt, smooth, bare
Ring-coil rim	{.stlemaxteci'n {.stletlemexteci'n	From .stlema'x, braided
Slat rim	pazantwauxteci'n	From paza'nem, to meet
Loopwork rim	.sxaitstei'n	From sxait's, wood, stick
Thick rim	.shahatltei'n	From .shahitl, pinked, gnawed
Openwork rim of two coils twining around each other	zū'teen	From zū'it, thick
Openwork rim with basketry coil or bark ribbon run through the loops	{.shahetltei'n tek .stlūptcen .shahetltei'n tek .s.nihwā'us?	From .shahitl, .shitl, pinked, gnawed, and .stlūp, twisted
Openwork rim of a single loop coil	.shahetltei'n tek .s.nlūxtci'n	From .s.nlū'x, threaded

TECHNICAL DESCRIPTIVE TERMS—Continued

English	Salish	Remarks
Openwork rim of two loop coils	.shahetltci'n tek .nsiä'iuuk	
Openwork rim of coils, ¹ the loops of which meet each other at the bends	.shahetltci'n tek .n)kitcā'usement-wā'uḡ ^u	From kitc, to reach, reflexive
Lid in one piece with the side of the basket	.nmēmetsqai'n	From mēmats, in one piece, or a whole
Loopwork lid	{.s.nhahetli'ken {.shahetlqai'.n	From .shahitl, pinked, gnawed
Slat lid	.sxai'tsqai'n	

TOOLS

Awl	.soō'el hap.mi'n	Common term for any kind of awl literally "piercing instrument," term sometimes used
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PROCESSES

To wrap the end of a splint (as in a bottom)	yü' kem	Common word for wrapping around and around .syü'k, wrapped around and around
To make coils of the outside parts of cedar roots	.npipā'ekenema	
To make a hole with the awl, to make a stitch	hap'i'm, hep'i'm	
To tap the stitch home with the awl	sekā'istem	To strike surface
To furcate in the ordinary manner	axpi'kenema	
To bifurcate	hap'i'kenema	Related to hapim (see p. 390)
To coil	za'nem	To go around in a circle
To complete a coil	za'nem tlā'k zel.päist	Go around-continue-circle
The process of twining or wrapping, binding the coils together as when commencing a bottom	.swetlkai'i	
To do wrapping	wetlkai'.em	Literally to pry
A round of coil	zel.pä'ist	
One round of coil	pai'as zel.pä'ists	
Ring coil	.spazantwā'uḡ ^u .skist tek .szanem	Literally meet each other Literally faint or concealed, invisible (junction of coil ends)
	kesi'p tek .szanem keste's .sza'nems	Faint or invisible coil She makes ring coil; literally she conceals it, her coil
To make a bottom	.ntcūwa'pem	teū'um to make, .steū'u, made

¹ There are also other names for this form.

PROCESSES—Continued

English	Salish	Remarks
To make the coil circular on a bottom or lid which has been started as an elongated watch-spring	.nkaieqa'pep	
To commence the sides	iē'pep	Literally to raise up, to make upright, as a wall or stick
Terms applied when sides are begun:		
set up	.tska'k	
set down	.stci'k	
sticking up	.stsi'k	
Very straight walled, little flare	nā'xom tek .stci'k	Really or truly
Completely around the sides, as applied to coils and designs	zel.pi'ken	
Encircled all over, as applied to coils and designs	zel.pane	
To make beading	lcepi'kenema	
To imbricate	penpa'nem	Probably from pa'nem, to fold; see also penim and penaxi'n, to make moc-casins
To make designs	tcetcuā'istem	.stcetcū', ornamentation
An article in the process of making (coiled work)	kaxū'x	
It is being made (coiled work)	axkaxū'x	
To make coiled ware	kuxō'm	
She makes coiled ware	kuxtē's	
To finish a basket (complete coils)	tcū'ktca	From tcū.k, finished
I have finished it (the basket)	{tcu'ktca.na {tcu'ktcen.na	
To make a rim	tcu _w a'nnsem	Literally to make edge, from .stcū'u, made
To prepare a basket or load for packing	tsēehē'kenema	

MEASUREMENT TERMS

To measure	tcuwé'sem	General term
To measure with the hand	tcuwesā'kstem	
To measure with a splint	tcuwesa'nnsem	
Measured	.stcuwé's	
Measurement by length of digits of the middle finger of the right hand	.szā'x, .szī'x .sze'x, (.sxā'x)	sei.a' tek esza'x, two joints their lengths
Measurement of the full length of the middle finger of the right hand laid with its back to the object	.szā' xekst	
Measurement of the width of one finger	piākst siā'kst (two finger breadth) musākst (four finger breadth)	

MEASUREMENT TERMS—Continued

English	Salish	Remarks
One span, thumb to second finger	.shwəpəkst .stlč'xəkst, .stlč'x.kst sei'a tek .szā'xəkst .szā' xəkst et sia' kst	Meaning two spans
One finger length and two finger breadths, i. e., full length of the back of the middle finger of the right hand joint by joint from tip to knuckle, with the additional breadth of the first two fingers of the left hand		

PARTS OF BASKETS

Coil	zī'l.pa .zīl.pas .sza'nem. .sza'nems	Its coil From za'nem To move in a circle
Bottom, i. e., bottom of an object	.nkamā'p .nkemā'p	
Beginning of coil	.nteimelha'p	From tei'mel beginning
End of coil	teu'kteaten, teuk- teenten	From teuk finished, finished-rim-thing
Foot (=saucer,	.ntseka'pten	Literally "what bottom is set up in"
Side of burden basket resting on the back of the bearer	.stlekema'pken	Term given by informant No. 5
Side of a basket, i. e., side of an object	.nkemelnē'ut, kemelenē'ut	
Side of burden basket next to the bearer	kweltamā'pken	From kwē'lt to carry, term given by informant No. 35.
Long side of burden basket next to the bearer	lalai'ken	From lalā't close, next, term given by informant No. 8
Side of burden basket away from the bearer	.s.ai.tskaāpken	From ai'.tska outside, term given by informants Nos. 5 and 35
Long side of burden basket away from the bearer	aitskai'ken	From ai'.tska outside, term given by informant No. 8
Short side of burden basket, i. e., side of an object	.nkemkemā'ks	
Short ends of burden basket	.nkemā'ks .nkemkemā'ksts	Its ends
Short side of burden basket to right hand of the bearer	.sihai'.st	Literally "good surface," "right-hand surface," from i'a good (i in compounds; siha'kst right hand)
Short side of burden basket to left hand of the bearer	.stsuk.ai'.st	From .stsuk.(ā'kst) left (hand)
Rim of a basket, i. e., rim of an object	.skemteī'n	
Its rim	.skemteī'ns	
Rim or edge of a basket	.skema'nns	Term applied to a sharp edge, not much used in connection with baskets

PARTS OF BASKETS—Continued

English	Salish	Remarks
Its edges	.skemkema'nusts	Common word for mouth
Mouth of a basket	.splū'.tcen	
Lid, i. e., lid of any object	.npū'ikaten, .npū'ikenten	
Flange on a basket	hitlēmī'n, hetlāmī'n	From .słok riding
Flange on the lid	.shetlqai'nten	
Lid without flange (i. e., simply resting on the rim of the basket)	.słokqai'.n	
Lid fastened to a basket by strings passing through it on which the lid slides up and down	.sāqiē'ek	From .sā'q tied
Tie-strings of a lid	ratcamī'n	From srā'tc fastened
Hinges on a basket holding the lid	ā'q.tcaten	
Partitions inside the basket	a'qatecenten .snxai.ā'us, .snxexaiāus	The second is a diminutive term
Handle of the basket	.nkwo'kemmen	From .skwo'kem to hold
Handle of the lid	.nkwona'mmen, .nkwona'mten, .nkweē'kenten	From kwenām to seize
Handle of skin passing across the top of the basket	.nkoō'sten	The last is said to be the proper term
		See .nkoō'sem. According to some, these are the loops to which this handle is attached. Perhaps it includes both. The term is also used for a kettle handle
Loops on the side of the burden basket, through which the tump line or pack-strap passes	.nzelpū'sten	From zel'p circle. This term refers to the two loops on the side next to the bearer
Loop through which the pack-strap passes	.nzelpī'kenten	This term refers to the single loop on the outer side away from the bearer, through which the strap passes to prevent its slipping up.
Basket with attached tump line	.snzel.pū's	
Tie-strings on the basket for fastening the load across the top	k,au'.k.ten, q,e'u.katen, q,e.a'ukaten	
Branches of fir or willow, or large leaves which are used to keep the load in place and shade it	ze'tzkatēn	

KINDS OF BASKETS

Ordinary large burden basket	tsi.a'; tsi.ēē; tseā'	Diminutive of tsi.a'; used in a familiar or endearing sense
Burden basket slightly smaller than the average; used by some people for slightly lowered walled forms	tsi.ei'i	

KINDS OF BASKETS—Continued

English	Salish	Remarks
Rather small burden basket, averaging about 10 inches in height	tse.he'tza, tsihe'tsa	Meaning false tsi.a'
Small burden basket	spa'nêk	
The ordinary smallest-sized burden basket	spā' penek	Diminutive form of spa'-nêk
The very smallest size used by little girls and occasionally by older people but not for carrying burdens	spanekō' ktsa	Diminutive, meaning false spa'nêk
Loaded burden basket	tseehē'ken	
Large oblong storage basket	.stlū'k	
Small oblong storage basket	.stlū'.l.k	Diminutive of .stlūk
Large circular basket, kettle or water container	.nkō'ETEN	Meaning thing for water
Small kettle basket or large bowl	.nko'koeten	Diminutive of .nkō'ETEN
Small bowl	.nkoko'koeten	Diminutive of .nkō'ETEN. There is some confusion of the two terms as used by the people
Bath tub basket	.ncé'.xamen, .nshé'-xEMMEN	Meaning thing for bathing in; from c.é'.xEM, to bathe the body
Washtub	{.nkwoi' tsamen .nqwoi' tsemmen	{Literally, thing for washing in; from qwoitsen, to wash something
Basket used for cooking berries before making berry cake	{.ntl.lka'itsaten .n.tlki'ltzaten	{From tlkiltetza, to cook berries
Basket in which to beat up soapberry froth, a favorite delicacy	{.nxōZEMMEN .nxōzamen	{Literally, thing to make xōzem in; from .sxō'-zem, soapberry
Mortar basket to mash berries in	.ntsāqa'paten	Literally, thing for mashing berries in; from tsāqa'pa, to mash berries for eating fresh; tsāqa'paten, a common name for the pestle used, which was generally of wood
Washbasin	{.ntsāūmen .ntsāusemen	{Literally, thing for washing in, from tsā'usem, to wash (as the face); and tsā'uem, to wash
Basin (common term for hand basin)	.ntsāusten	Meaning to wash; tsāusten, soap
Basin in which splints are soaked	kwanenīsten	Literally, thing in which to soak splints or edges; from kwa'nen, soaked, and kwanenīsem, to soak splints
Kettle or boiler	{.nqāuxamen, .nkā'uxEMMEN	{Literally, thing for boiling in; from qā'uxem, to boil food (old style?), and .nqā'ux, a thick root soup
Water basket, used in sweat-house	.nhī'men	Literally, thing for making steam with; from hēm, to make steam or to put water on hot stones
Shaman's hand bowl	.nkai'eksten	

KINDS OF BASKETS—Continued

English	Salish	Remarks
Dipper or cup	{.nzāuten, .nzā'umen, .nō'katen	{Literally, "dip thing;" from zā'umen, to dip Literally, thing to drink with; from ō'qa, to drink
Triangular pourer	.nkwelamī'n	Literally, instrument for pouring; from kwel'm, to pour
Spoon or ladle	{.stlaxē'men .stlaxī'men .skū'x tek stlaxē'- MEN ¹	Common term for spoon Basketry spoon
Rattle	{.nki'kōxelaten .skū'x tek .nki'kōxe- laten	Common term for rattle Basketry rattle
Workbasket of any shape	{.nā'i.ksten .nā'eksten	{Literally, thing for work- ing with; from ā'lekst, to work
Winter lodge or underground house shape	siisteekene'lemox	From sii'steken, kekule house
Nest shape	zumanc'lemox	From zu'man, bird's nest
Any round basket	.skomoxe'lemox	From skomox, round
Small round basket	{.skapuxe'lemox .skapuxeleqā'in	{From qapū'x, hazelnut; -qā'in is a term some- times used for round or head-shape articles
Smallest round basket	.skapuxelaqē'qen	From -qē'qen, diminutive of -qā'in
Shape similar to white man's angler's basket	{nwā'u.lten .nā'qwenten .nā'qwaten ékeza'mten	{From cwā'utl, small fish, trout From ā'kwen, bait; liter- ally, thing to put bait in Term used for any object which held tobacco, also called skūx tek āxa'na, from āxa'na, term for rawhide saddlebags used by women
Basketry baby carrier	.skū'x tek kwo,li'.ten	

WEARING AND MENDING

Worn-down basket with broken rim	{.sxoixoi.tei'n .s.nxoixoitci'n	
Basket with mended bottom	.s.nlā'ux.p	From lā'uxem, to patch

PROPORTIONS AND SHAPES

Basket with a large bottom	{.ntl.q'ap .ntl.i.qap	{Seems to mean wide bot- tom.
Basket with a narrow bottom	.nteexl'x.p	A diminutive form.
Basket with a small bottom	{.s.ntsūxwa'p .s.ntsūxhwa'p	From .stsū'x pointed Meaning drawn in at one end, because the basket approaches a point at the base, used for unusu- ally small bottoms.

¹ skūx is often added to phrases or words to indicate that coiled basketry is meant, as skūxtek ékeza'mtem; literally, tobacco receptacle of coiled basketry.

PROPORTIONS AND SHAPES—Continued

English	Salish	Remarks
Basket with a circular bottom	{.nkaï.qa'p .skai.qa'p .nkaïeqap .nzaxha'p	{From kaiē'k, round or circular in outline
Basket with a long bottom	{.nza'x.p .nzā'xep	{From zā'xt, long
Very perfect watch-spring bottom	.nkaikaieq.pōē	From kaiē'k, round
Elongated watch-spring bottom	{.nkaie'q.p tek.nzāxep .nkaieq.p tekts.nzā'- zex.p	{The second term is used particularly if the bottom is nearly round
Angular basket with sharp corners	{.skokwoani .nk _w auani	
Basket with angular mouth or sharp corners	{.skauautei'n .sk _w auk _w autēin	{From .skwōu, .skwāu, bent or leaning over
Rounded basket	{zezi'l zēzel	{From .szí'l, in a circle
Basket with rim lower along the sides than at the ends	{.slas.tei'n .slōsstēi'n	{From .slé's, sagging, low
Basket of usual proportions except half height	.shī kā'us	Meaning half full
Square-mouthed basket	.sxenex tei'n	
Large-mouthed basket	.naxazumtei'n	From azū'm, axazū'm, big
Small-mouthed basket	.nk _w umatei'teen	From kwomē'ma, small; -teiten is the diminutive of -tein
Basket with widely flaring mouth	{.s.nleeqtei'n .s.nlē.qtei'n	From lé'qet, wide; or .stik, squatty(?)
Basket with little flare	.smistein	
Narrow mouth	.ntēextēi'teen	From texī'xat, narrow, thin sidewise
Wide mouth	.nlēqettei'n, laqet-tei'n	From lé'qet, wide
Long mouth	.nzā'xteen	

PRINCIPAL PREFIXES AND SUFFIXES OCCURRING IN BASKETRY TERMS

PREFIXES

.s-, when prefixed to a verb, transforms it to a noun.

s-, seems often to imply a finished or completed condition.

.n-, inessive.

Reduplication is a sign of the frequentative or of repetition of some kind; also it is a sign of the plural or distributive. Certain kinds of reduplication are used as diminutives.

SUFFIXES

-tein, -teen, mouth, edge, rim, shore.

-teinten, thing at mouth.

-a'ni, ear, corner, angle or prominence between.

-āp, -ēp, Ep, -p, bottom, foundation.

-x'wōp, foundation, root, spread out, far-reaching.

-i'ken, back, ridge.

-āist, -est, -ist, -est, surface, skin.

-ei'.st, stone.

-ā'kst, -i'kst, -Ekst, -kst, hand, arm, finger.

- ā'tza, -he'tza, false, imitation, not real, substitute.
 -ten, -tin, -tīn, -tēn, thing, object, place.
 -mīn, -mēn, thing, tool, instrument.
 -qain, -qēn, head, top, round thing like a head.
 -ā'us, -e'us, middle; trail, way, space between; together, mutual.
 -twā'ux, -entwā'ux, each other, one another.
 -ēnīs, edge, sharp edge.
 -a'nns, -a'n.s, edge, border, tooth.
 -ēm, verbal ending.
 -ēma, verbal ending.
 -ē'ltsi, body, inside of body.
 -ā'usken, top or middle of head, rounded thing, bundles of certain kinds.
 -ī'tsa, skin, covering.
 -ēlp, -ēlp, -ēlp, plant, tree, bush.
 -ēi'tx, -ai'tx, leaf, paper, flat thin thing.
 -a'iuk, -ēek, ā'iek, -ī'ek, tree, stick, long and small thing.
 -ō'ē, real, proper, common.
 -ī'kentēn, thing on the back, ridge.
 -āks, nose, point, end.
 -ē'ken, -a'ken, load, bagful, bale.
 -ēnī'sten, thing at edge.
 -e'kst(t)ēn, thing for the hand.
 -e'ēmox, vessel or utensil, sack.
 -a'ptēn, thing at bottom.
 -a'ne, all over.
 -s, possessive.
 -tīm, hollow, inside space.
 -ūs, face, eye, frontal surface.
 -ū'sten, -ō'sten, thing at face.
 -ēlnē'ut, side of body.
 -ā'pqēn, bottom of head, back of head or neck.
 -xīn, -xēn, leg, foot, shoe.
 -ī'et, -ei't, child, offspring or young.
 -h-, -w-, used for euphony in certain combinations.
 -t-, when the possessive s has to be added to a word ending with s, t is put between the two s's.
 -t-, it.

ORNAMENTATION

English	Salish	Remarks
Plain basket devoid of designs	{kwī'kwum kwikwom	{Possibly derived from kwu'mkwumt, smooth.
Worked, ornamented	.stcū'u	
Ornamented, bearing patterns	{.stcētcū'u .stcētcū	
	{.ntcētcuā'isten tau- tcuā'isten	
Ornamentation	{.ntcuā'isten .s.ntcuāisten	
	{.stcūi'kst ten tce- tcūi'ksten	
Ornamented bottom	.stcētcūwā'p	
Having designs on the inside	.s.ntcētcūtim	
Ornamented sides	.stcētcūwī'ken	
Ornamented all over	.stcētcūwā'ne	

BEADING

English	Salish	Remarks
Beading	lēpi'kenten	leapē'peken (?) a diminutive (?) used commonly for over and under one or two.
Beaded bottom	.sleepa'p	
Basket or object with beaded bottom	.s.nleepa'p	
Beaded line marking theoretical or actual limits of the bottom	leepa'pten, leapa'p-ten	
Beading on the walls of a basket, or beading in general	{lēpi'ken .sleepi'ken .slē.pi'ken	{The terms seem related to the word for ribbon, or to .slēpx, dotted with holes here and there.
Beading at the rim	leeptci'n	
Beaded line around the rim	leeptci'nten	
Beaded lid	.slēepqa'in	
Beaded design	{.sleepā'ist .slē.pei'.st	

IMBRICATION

Imbricated	.spa'n	From spa'n, folded; or pa'nem, to fold.
Imbrication	{.spenpa'n .spanā'us	{Folded middle; folded double. Sometimes applied to imbrication.
Imbricated bottom or imbrication on the bottom	.npenpana'p	
Basket with an imbricated bottom	.spenpana'p, .s.npenpana'p	
Basket covered with imbrication all around	{.stlū'k tlo' zulip .stlū'k tlo zel.pa'ne	From zulip complete circle. Encircled all over.
Basket surface imbricated all over, designs and background	.stlū'k	From .stuk closed.
Filling (small designs for bare spaces)	.nhaktei'n	Related to -tei'n, rim (?) because such designs are placed near the top (?).

TERMS DESCRIPTIVE OF DESIGNS OR THEIR ARRANGEMENTS

Bare between designs-----	kwikwumā'us, from kwu'mkwumt, smooth, slick.
Close formation (but not touching).	{kikatementwā'uḡ, from ki'.kat, close, near. lā'ementwā'uḡ, from .slā'a, lālā'.t, close, near.
Connected (running into each other).	{.nkitcha'uas, kitcha'uas, from ki'te, to arrive at; -hā'us, way, path, progression. .ātcementwā'us, from .s.ā'te, tied, fastened. .slēlī'k tek es,atc,ā'te. .s,atc,atcementwā'uḡ.
Connected by middles-----	.atcā'usementwā'uḡ.
Corners touching each other----	.skenkenā'ksegmentwā'uḡ, from .skī'n, touching.

Having corners or shoulders	.kenkenā'xenementwā'uḡ, from kiní'n, to hit against something.
touching each other.	
Diagonal zigzag-----	.skakazetlā'ks, from .skazí'tl, tumbling over, or leaning to one side.
Diagonally arranged, or oblique	.stā'l.
Double lines-----	{.stlkausā'iuk, from .stlkā'.us, together; -äiuk, tree, stem, log, pole, line, long thing. .stlqäusei'uk.
Enclosing other small designs---	{.stetecüē'ltsi, from stetecü'u, ornamented, embroidered. .stetecü.
Ends connected-----	kitcexā'ks.
Ends apparently entering each other.	ülḡhā'ksementwā'uḡ, from ulḡ, to enter; -ā'ks, ends.
Ends of one apparently entering the middles of others.	ülḡhā'ksäusementwā'uḡ, from ulḡ, to enter, -ā'ks end, -äus, middle.
Ends pointing downward-----	kütca ha'ks, from kütca, to go down.
Ends pointing upward-----	hätlemā'ks, hethatlemā'ks, from hä'tlem, to ascend.
Ends separated-----	kaka'wā'ks, from kakā'ü, far, distant.
Ends touching each other-----	.skēkenā'ksementwā'uḡ, from .skí'n, touching.
Entering bottoms of each other	{.snhupstwā'uḡ, from ulḡ, to enter; -üps, back, base. luxlux.patwā'uḡ, from .slüx, entered into something; -ap, bottom.
Entwined. See Twisted.	
Far apart from each other-----	{kakauementwā'uḡ. kekekauementwā'uḡ.
Figure with angles, especially triangles.	stlentla'ni, from .stlā'ni, with ear; tlā'ni, ear.
Grouped, scattered-----	.slel'k, from .slí'k, something in a mass or in a spot.
Hanging, dropping (from a large pattern).	{.stô'x, from stôx, hanging, suspended. .stôxtô'x.
Heaped up-----	.shapha'p, from .sha'p, heaped.
Horizontal-----	.sketsā'us, .sketski'ts, from .sketz, .ski'ts, across, crosswise.
In ones, here and there-----	npē'apai'a, from pa'i.a one.
In twos, here and there-----	.nsēasci'a, from se'i.a two.
Joined-----	{.nkítcha'uas. tcoqatwā'uḡ, from .stcō'q, joined; tcōqem, to join, unite.
Oblong-----	zā'x.tsa, from zā'xt, long.
One. See In ones, here and there.	
One catching into or pressing on the other (apparently).	sk.ipstwā'uḡ, from sk.í'.p, pinched, squeezed, caught between something.
One resting within the other (apparently).	.slükstwā'uḡ, from lü'kem, to embrace.
Opposite. See Two opposed points; Pointing opposite ways.	
Pointed-----	.skem.etlā'ks, from .skeme'tl, diminishing to a vanishing point.

Pointing opposite ways-----	menāusā'kstēm, from .nmenā'us, .nmenā'u-sā'kst, on both sides, on both hands.	
Projecting. See With projecting points.		
Rows, or one following the other-----	.skei.stwā'uḡ, from kei'em, to pursue, follow.	
Sharp points-----	{ .xoxoxō'ks, ^a from .sxoxxō'z, sharp. { .stsemtsemā'ks } { .stse.tsemā'ks }	from { .stsemā'ks, sharp pointed, or from .stsa'm, bone.
Separate-----	pēastcū't	from { peastcū't, alone; paia one, and -tcūt, self (reflexive).
Single-----	pēastcū'tst, diminutive	
Spaced-----	{ .npia'ist, .npipia'ist, from .npa'ia, in one piece. { .snwelwelā'us, from .swel, swil, clear space. { .skekeni'tz, from .skani'tz, in progressive circles or spirals. { .skekani'tz.	
Spiral-----		
Touching each other-----	kenementwā'uḡ.	
Truncated-----	{ .sketū'ḡ { .sketkettū'ḡ }	from { sketū'ḡ, cut off short. { .skit, cut, cropped.
Twisted-----	{ .stlūpstwā'uḡ { .tluptlu'patwā'uḡ }	from .stlū'p, twisted.
Two opposed points-----	menāusā'ks, from menā'us, both sides.	
Upright, standing up from-----	{ .stsei'p, something upright or set up. { .stse.pā'ks, something upright, -ā'ks, end, point. { .stsēep, from stsei'p, upright.	
Vertical-----	{ .shathā'tlem, from hā'tlem, to ascend.	
With projecting end-----	.stlkimā'ks, from .stl.ki'm, projecting.	
With projecting points ^b -----	{ .stlekemā'ks { .stlektlekemā'ks }	from .stl.kim, projecting.
With sharp ends or points-----	{ .skemā'ks, end, promontory, projection. { .skemkemā'ks	

NAMES FOR GEOMETRIC FIGURES¹

1. .stī'l, .stī'l, anything spread out lengthwise so as to be long and narrow.
2. .stī'l tek toxtō'xt } straight line.
3. toxtō'xt tek .stī'l }
4. .ste'xo's¹ (or .stoxō's) tek .stī'l, line going straight.
5. .stā'l, a diminutive form of .stīl, straight.
6. .stilti'l, a frequentative or plural form.
7. .stiltā'l, a frequentative or plural form.
8. .stseḡ'p, .stsehi'p, } Any vertical line or erect, perpendicular long and narrow thing going straight up (tsehi'p not applied to people or animals).
9. .stoxō's tek .stsehi'p }
10. .stseḡ'p tek toxtō's }
11. .stse.pā'ks,² standing on end, upright, point up.
12. hatlemqai'.n,³ head or end up, ascending.
13. .sqe.z .sqar'z⁴ u'a .sihē'ltsi⁵ These terms do not mean bent or crooked objects but leaning ones that are straight.
Straight thing not vertical to the right side.

^a Applied to angles and zigzags with sharp ends.^b Also applied to a design with corners.¹ For notes see pp. 410-411.

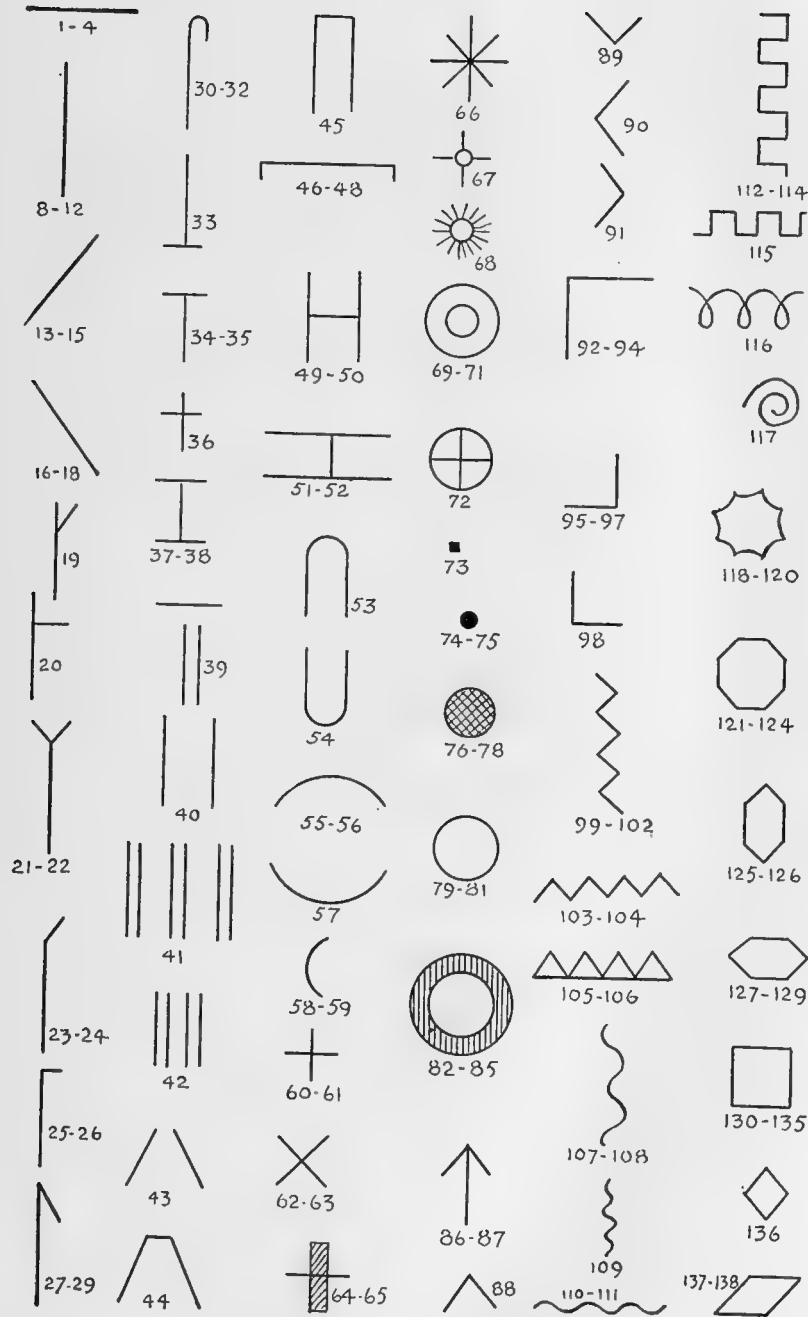


FIG. 120.—Names for geometric figures

14. .skwau'u⁶ .sqa'rz u'a .sihē'ltsi, leaning to the right side.
15. .szi'kkeni⁷ .sqa'rz u'a .sihē'ltsi, head fallen over to the right side, leaning over as if half fallen.
16. .szi'kken .sqa'rz u'a .stsukahē'ltsi
Head fallen over not vertical to the left side.
17. .sqe'.z .sqa'rz u'a .stsukahē'ltsi
Straight thing not vertical to the left side.
18. .skwau'u u'a .stsukahē'ltsi, leaning to the left side.
19. .stse.pā'ka,⁸ vertical line with a branch, especially if this is directed upward.
20. .stlā'k_u.ka,⁹ a spikelike object with a protruding stub, especially if this be at right angles or if the stub seems to enter the object like a nail.
21. .nxoxsqai'.n, forked head.
22. .nxoxstci'n,¹⁰ forked, or forked mouth or opening.
23. .tlezōtā'ks, end indirect or askew.
24. .skauwā'ksi¹¹ tek ta.ta'.ks nau'x^{us} } Short line inclined upward from upper
Broken end not very much. } end of long vertical line.
25. .skol.tsā'ks,¹² crooked or zigzag end. } Short line at right angle at upper end of
26. .skauwā'ks, broken end. } long vertical line.
27. .ske.wahā'ks,¹³ hook, or hooked end. }
28. .skaiū'wa, hook, gaff. } Short line inclined downward from
29. .stse'i'p tek skau.pā'ks } upper end of long vertical line.
Standing up broken through end.
30. .skeiū'wa tek toxtox t, straight hook. }
Hook straight }
31. .skeiūwāō'ē,¹⁴ real hook. } Vertical line with crook at upper end.
Hook real. }
32. .stsei'p tek .smu'tsken
Standing up bent head (or curved).
33. .sketsā'p,¹⁵ crossed, meaning something across the bottom. Short base line under vertical line.
34. .sketskai'.n, crossed, or across head. }
35. nā'xom tek sketsqai'.n } T-shaped top.
Truly crossed head. }
36. .sketskai'.n tek .stlekema'ks,¹⁶ short cross line near top.
Crossed head projecting end.
37. .sketsketsā'ks tek menā'us,¹⁷ across ends both ways. }
38. menā'us a ketsā'ksten¹⁸ } Cross line at top and
Both ways the crossed-end thing. } bottom.
39. siā'ek¹⁹ tek .stse.(h)ā'ks tek ki'katementwā'ux^u,²⁰ i. e., two vertical lines
Two (lines, etc.) standing on end close to each other
close together.
40. siā'ek tek .stse.(h)ā'ks tek kakā'uementwā'ux^u,²¹ two vertical lines far apart.
41. sisiā'ek²² tek .stlkausā'ek²³ tek .stse.(h)ā'ks tek tcū'u²⁴
Two lines (or in twos) together lines standing on ends rather
kakā'uementwā'ux^u, i. e., vertical lines together in twos rather far apart.
far from each other.
42. musā'ek²⁵ tek .stse.(h)ā'ks tek kike'katementwā'ux^u,²⁶
Four lines standing on ends close to each other.
43. .stutuwā'p, spreading toward the bottom. Cf. tatūenā'ist, a design of lines alternately converging and separating.
44. .stutuwā'p tek .sketsqai'.n, spreading toward the bottom, with something placed across the top.
45. siā'ek tek .stse.hi'p tek wi'st tek .sketsqai'.n, i. e., two long vertical lines
Two lines standing erect high cross head
with something across the top.
46. xenexā'ks,²⁷ square or blunt point.
47. siā'ek tek .stse.hi'p tek .slo's tek .sketsqai'.n, i. e., two low vertical lines
Two lines standing erect low cross head
with something across the top.

- 47a. .siä'ek tek .stse.hf'p tek .nlaui'mex²⁸ tek .sketsqa'i.n, i. e., two vertical lines
Two lines standing erect near the ground cross head
near to the ground with something across the top.
48. .s.ntlä'kiüimex²⁹ tek tcü'u kakä'uementwä'ux^u tek zä'xt a ketsqai'ntens.
Stakes in the ground rather far from each other long the their thing across head.
49. .siä'ek tek .stse.f'p tek .s.nhätcä'us³⁰
Two lines standing fastened middle.
50. .siä'ek tek .stse.f'p tek .sä'kaus³¹
Two lines standing fastened together or fastened middles.
51. .siä'ek tek .stse.f'p tek .sä'kaus tek .sketsaus
Two lines standing fastened together middles crosswise.
52. .etlkē'kat tek .stse.hä'ks tek .sketketsä'ks (or menä'us a ketsä'kstens).
Short standing on end crossed ends both sides the its things across ends.
53. .smü'ts tek .nxostä'p³² tek wī'st (or .ntlīpt), i. e., in a half circle as pliable
Bent descending bottom high deep.
willows are bent.
54. .smü'ts tek .nhatlemā'p tek .ntlīpt, in a half circle or curved.
Bent (in a half going up bottom deep.
circle or curved)
55. .s.ntle'tloxa tek .smü'ts tek .s.nxosta'p
Shallow curved (thing) bottom down.
56. .skethwä'us tek .skaiē'q tek .nhatlemqai'n
Half circle ascending head (top up).
57. .s.ntle'tloxa tek .smü'ts tek .s.nhatlema'p
Shallow curved (thing) bottom up.
58. .s.ntle'tloxa tek .smü'ts tek .sketsä'us
Shallow curved thing crosswise.
59. .skethwä'us tek .skaiē'q tek .sketsä'us
Half circle crosswise.
60. .sketsä'usementwä'ux^u, the common name for an ordinary cross.
Crossing middles of each other.
61. .shatlemqai'n tek .sketsä'usementwä'ux^u, cross head up.
Ascending head across middles (crosswise) each other.
62. .ketsä'usementwä'ux^u tek .ske',z, cross leaning to the side.
Crosswise each other not vertical.
63. .ske',zqai'n tek .ketsä'usementwä'ux^u, cross with head to the side.
Not vertical head crosswise each other.
64. .s.nketsä'us, across on the middle.
65. .sketsä'usementwä'ux^u zū'it .nhatlemqai'ntens³³ texi'xat a ketsä'ustens.
Crosswise each other thick its ascending head object then the crosswise thing.
66. .skaiē'q piō'eps .nxox(s)tcī'ntens
Circle eight its forks.
67. .skaiē'q tek .stlektlaq^u tek mū's
Circle things sticking in four.
68. .skaiē'q tlo³⁴ .swī'l tlo.zell'p
Circle completely fringed completely around (revolution).
69. .s.nulx^u ³⁵ hwä'us tek .skaiē'q, circles within one another.
70. .skaiēqā'usqen, circle crown.
71. .s.nhatqē'qen³⁶ tek .skaiē'q, circle with hole in the center.
72. .skaiē'q tek .sketsä'usementwä'ux^u en a toxtahwē'qen, i. e., circle with a cross
Circle crosswise each other in the middle.
in the middle.
73. .sšetī'tuk,³⁷ little hole.
74. .skaiē'q tek .sla(la)me'mek,³⁸ circular little spot.
75. .skomō'x tek kwomē'ma, round small object.
76. .skomō'x, round object.
77. .skomōx'ō'ē, really round.
78. .skomoxō'za, rounded object.
79. .skaiē'q, circle.
80. .skaiē'eq, little circle.
81. .skaiēq'ō'ē, real circle.

82. .skaič'q tek .sax'tû'k, circle with hole.
 83. .s.lhwā'kst .scüti'ns, ring, its form.
 84. .s.lhwā'kst .skwa'ntens, ring, its appearance.
 85. .s.lhwā'kst .stsoqati'ns, ring, its mark.
 86. .s.nha.tlä'la, notched (the name for this figure or a variety of arrowhead or triangular notch).
 87. .menusā'ks tek skaiū'wa, both sides of end hook.
 88. .nxos(t)tcī'n tek .nxosta'p .nxoxstei'n (.nxosteī'n, forked object).
 Forked mouth bottom down.
 89. .nxos.tci'n tek .nhatlema'p.
 Forked mouth bottom up.
 90. .nxosteī'n tek .sketsā'us ū'a .sihē'ltsi.
 Forked mouth crosswise to the right side.
 91. .nxosteī'n tek .sketsā'us ū'a .stsukahē'ltsi.
 Forked mouth crosswise to the left side.
 92. .ske.zā'ks tek .nhatlema'p (or .stse.ē'p).
 Leaning over end bottom up standing, vertical
 93. .ske.zā'ks ū'a .sihē'ltsi.
 Leaning over to the right side.
 94. .spenā'us³⁹ or .stse.ē'p tek .s(n)penā'us ū'a .sihē'ltsi
 Folded standing doubled to the right side.
 95. .ske.zā'ks tek .nxostā'p, end leaning, bottom down.
 96. .ske.za'p ū'a .stsukahē'ltsi, bottom leaning, pointing to the left side.
 97. .s.ntcū'imEX tek .spenā'us ū'a skwō't⁴⁰ (or ū'a .stsukahēltsi)
 Prostrate, on the ground doubled to the right side (or to the left side).
 98. .spenā'us ū'a .s(h)ihē'ltsi.
 Doubled wise to the right side.
 99. .skolkolō'tz }
 100. .skwolkwalitz } Crooked, crooks, zigzag. The name for vertical zigzags.
 101. .stluplupiäek⁴¹ tek hā'tlem, twisted line ascending.
 102. .stsehi'p tek .snixani'x, standing or vertical corners.
 103. .sqōtzaqō'tz,⁴² crooked, crooks, zigzag. The name for horizontal zigzags.
 104. .sqōtzaqō'tz tek .sti'f, crooked in a line.
 105. .shātlahā'tlem (tek .sti'l), ascending and descending line (up and down).
 106. .s.ntcū'imEX tek .stlū'piäek, prostrate twisted line (on the ground).
 107. .skakeni'tz (tek hā'tlem), wave line going up.
 108. .stsehi'p tek .skākeni'tz, standing or vertical wave line.
 109. .stsehi'p tek .skakeni'tz tcamē'mat⁴³ a kākenitzmī'ns.
 Standing wave line small the its wave lines.
 110. .s.ntcū'imEX tek .skakeni'tz.
 Prostrate on the ground wave line.
 111. .skākeni'tz tek .sti'l.
 Wave line in a line (horizontal).
 112. .s.nxa'xi'tl⁴⁴ tek hā'tlem, notches ascending.
 113. .s.nxaxi'tla'n.s, notched (frequentative) edge.
 114. .szinzeni'k tek .snxenextci'n (or .snixanixteī'n).
 Coils square mouth (corner mouth).
 115. .s.nxaxi'tl tek .s.ntcū'imEX.
 Notched (frequentative) flat on the ground.
 116. .szinzeni'k tek .s.ntcū'imEX, coils horizontal.
 117. .szini'k (or .szini'k'ō'ē), real coil.
 118. .skaic'q tek .shāhi'tl, notched circle.
 119. .skaic'q tek .shāhītla'n.s, circle, notched edge.
 120. .skaic'q piō'eps .shāhi'tls, circle, eight its notches.
 121. .skaic'q tek tēu .snixani'x, circle inclining to corners.

122. .skaiē'q tek piō'eps .snixani'xs, circle, eight its corners.
 123. .skaiē'q tek piō'eps tek .snixani'x, circle, eight corners.
 124. .skaiē' eq tek .snēni'x, circle a little square.
 125. tlā'kemekst tek .snixani'x tek (.s)tsux̣tsux̣ū'xs, six corners, faces a little drawn out.
 126. .snani'x tek tlā'kemekst (tek hā'tlem), corners six, ascending.
 127. tlā'kemekst tek .snixani'x tek .sketsā'us, six corners crosswise.
 128. sketsā'us tek .snēni'x tek tcū' .stsux̣tsux̣wā'ks.
 Crosswise little square rather ends drawn out.
 129. sketsā'us tek .snēni'x tek .stsux̣tsux̣ū's tek zā'zxt.
 Crosswise little square ends drawn out little long.
 130. .nmusā'ks, four ends or points.
 131. snixani'x'ō'ē, real corners (square).
 132. tē'tox tek .snēni'x, true square.
 133. toxtō'xt tek .snixani'x, straight cornered (square).
 134. mūs .snixani'xs, four its corners.
 135. .snixani'x tek mūs, corners four.
 136. .snixani'x tek mū's tek .sketsā'us.
 Corners four crosswise.
 137. mū's tek .snixani'x tek .stcū'neks, four cornered drawn to one side.
 138. mū's tek .snixani'x tek .skoō'tz(us), four corners crooked.
 139. .snixani'x tek mū's tek .stsux̣tsux̣wā'ks,⁴⁵ corners four ends drawn out (or coming to a long point).
 140. .snixani'x tek mū's tek .s.sahā'ks, corners, four ends coming long and narrow (contracting).
 141. .snixani'x tek mū's tek nā'ux⁴⁶ tek .satsa(h)ā'ks, corners four ends very much drawn out.
 142. .snixani'x tek mū's tek nā'ux tek .szexezexqai'n, corners four ends very much long headed.
 143. mū's tek .snixeni'x tek .scī'k tek .stse.pā'ks, four corners oblong standing on end.
 144. .sketkethwā'ks⁴⁷ tek hātlemaqai'n, cut off ends; end up.
 145. mū's tek .snī'xeni'x tek .scī'k tek .sketsā'us, four corners oblong crosswise.
 146. .sketū'x mū's .snixani'xs el .s.ntcū'imex.
 Cut off short piece four corners and prostrate on the ground.
 147. mū's tek .snixeni'x tek .skazqai'n, four corners leaning to side.
 148. .ska.zqai'n tek .snēni'x.
 Leaning to side head square (cornered) object.
 149. mū's tek .snixani'x tek .ska.zqai'n ū'a skwō't.
 Four corners leaning over head to the opposite side
 150. .sketketū'x^u tek .ske.zqai'n ū'a .stsukahē'ltsi.
 Little cut off piece leaning head to the left side.
 151. .sketketi'tux^u tek .sxostap (if small).
 Little cut off piece bottom down.
 152. mū's tek .snizani'x tek .skethwā'ks, four corners end cut off.
 153. .nxosta'p tek .stsux̣hwā'p, bottom down, drawn out bottom.
 153a. mū's tek .snixani'x tek stsux̣qai'n el .skethwā'ks.
 Four corners contracted head and cut off end.
 154. .nhatlema'p tek .stsux̣hwā'p tek .skethwā'ks, bottom up drawn out, cut off end.
 155. mū's tek .snixani'x tek .nhā'tlema'p tek .stsux̣hwā'p tek .skethwā'ks.
 Four corners bottom up contracting bottom cut off end.
 156. ka(t)la's tek .snixani'x tek hā'tlemqai'n.
 Three corners head up.

For notes see pp. 410-411.

157. ka.la's tek .snixani'x tek kuteahā'ks.
Three corners going down end.
158. ka.la's tek .snixani'x .sketsā'us.
Three corners crosswise.
159. ka.la's tek .snixani'x teitemā'ks ū'a .stsukahē'ltsi.
Three corners going end to the left side.
160. ka(t)la's tek .snixani'x tek teū' .stsuxhwā'ks el hātlemqai'n.
Three corners rather contracting end and ascending head.
161. stsuxhwā'usqen tek hā'tlemā'ks
Drawn in top ascending end.

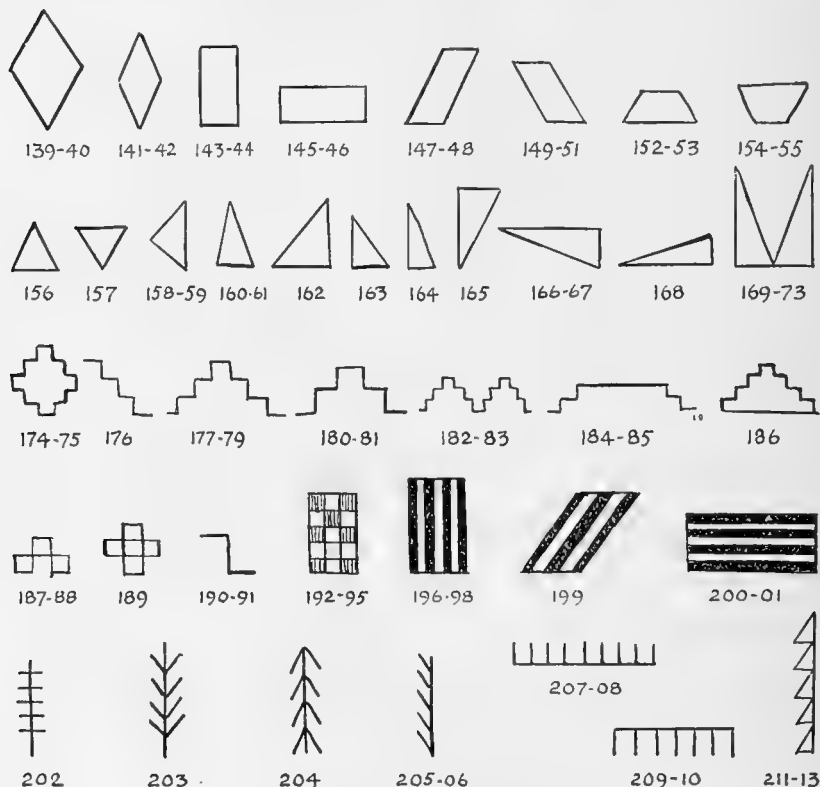


FIG. 121.—Names for geometric figures

162. katla's tek .snixani'x tek .skazā'ks, three corners leaning off.
katla's tek .snixani'x tek .stcē'x^u, three corners spread.
163. katla's tek .snixani'x skwōt a skazākstens
Three corners opposite side the its end leaning over.
164. katla's tek .snixani'x tek .stsuxhwā'ks el .skazā'ks el hā'tlemā'ks
Three corners end drawn out long and leaning over end and ascending end.
165. katla's tek .snixani'x tek .stsuxhwā'ks el .skazāks el kutca(h)āks
Three corners end drawn out long and leaning over ends and descending end.
166. katla's tek .snixani'x tek nā'uḡ tek .stsahāks ū'a skwōt
Three corners very much drawn out end to the opposite side.
167. katla's tek .snixani'x tek .stsahā'ks tek teitemā'ks ū'a .stsukahē'ltsi
Three corners drawn out end going end to the left side.
168. katla's tek .snixani'x tek .stsahā'ks tek .stcexiū'imex
Three corners drawn out end spread on ground.
169. .stlentlā'ni,⁴⁸ having ears.

For notes see pp. 410-411.

170. sei'a katla's .snixan'xs tek .sntcō'kekā'p,⁴⁹ two, three their corners united at the bottom.
171. .snhitte'i'n tek azū'm, notched opening large.
172. pai'a tek .shí'tl (or .shí'tl'ō'ē), one notch (or real notch).
173. .nsei'a tek katla's .snixan'xs tek hathatlemā'ks, two together, three their corners, ends ascending.
174. skaiē'q tek .snxaxi'tl, circle with notches.
175. skaiē'q tek .snc.ní'x tlo zElip
Circle squared (cornered) completely around.
176. .skolotsā'ks, crooked ends (common term for diagonal zigzags).
177. .snxaxi'tl tek .stsuxqai'.n, drawn in head.
178. .skolotsā'ks tek .stsuxhwā'ks
Crooked end contracted ends.
179. .skolqolotsā'ks tek .sntcokekqai'.n
Crooked end united head.
(diagonal zigzag)
180. .skolotsā'ks tek .sntsūxqai'.n
Crooked ends drawn in head.
181. .skolkolotsā'ks tek .stsuxhwā'ks tek hatlaha'tlem
Crooked ends contracted ends ascending and descending.
182. .skotsakō'ts tek .sxaxi'tl
Crooked ends horizontal notched.
183. .skolotsā'ks tek laketqai'.n, crooked ends, wide head.
184. .skolotsā'ks tek .nzaxqai'.n, crooked ends, long head.
185. .skolotsā'ks tek .tlkā'p, crooked ends, wide bottom.
186. .skolotsā'ks tek .skeā'us, crooked ends in half or split across middle.
187. katla's tek .snhatcā'us, three tied together.
188. katla's tek .snení'xā'ist⁵⁰ tek .shatehatcā'ks
Three squares tied ends.
189. .snhatkē'ken tek .sketsā'usementwā'u^x
Hole in little head cross.
(center)
190. menausā'ni tek .skē'u
Both ways, ears broken.
191. temení'kenementwā'u^x tek .skēukē'u
Opposite sides each other broken.
192. .sketu'x^u tek .slalí'k tek .stsehā'ks
Cut off short piece spotted standing on end.
193. .sketketū'x^u tek .smū'kū⁵¹
Cut off short piece close in a group.
194. tēmtēme'mat tek .sketketi'tūx^u tek .smū'kū
Small (plural) small cut off pieces close together.
195. .sketu'x^u tek .stcētē' tek tcamē'mat tek .snixan'x
Cut off variegated, ornamented, small (plural) corners (squares).
embroidered
196. .sketūx^u tek .snoko'kiāek⁵² tek .stse.pā'ks, cut off piece with incisions forming lines, end up.
197. .sketū'x^u tek .sisi'p, cut off piece striped vertically.
198. .sketū'x^u tek .sexē'x,⁵³ cut off piece with incisions.
199. .sketū'x^u tek .snoko'kiāek tek .skwau'u
Cut off piece incisions leaning from vertical.
200. .sketū'x^u tek .snoko'kiā'ek tek .sntcū'imex, cut off piece, incisions in lines flat.
201. .sketū'x^u tek .stsō.tsō
Cut off piece striped.
202. .sntsepā'ks tek .snkeki'ts
Standing on end with cross pieces.
203. .skeke.xma'ka tek hā'tleme'mka, having branches points up or ascending
204. .skeke.xma'ka tek .shosta'ka, having branches points down or descending.
205. .stlā'k_ueka ū'a skwō't tlo ux^uti'p⁵⁴ (tek .stse.pā'ks)
Point with spikes to the side to the end standing on end.

206. .stse.ɪp tɛk .stsɛä'ɛk ũ'a skwōt
Vertical long thing to the side.
207. .s.ntɛũ'imɛx .tlkɛ'kat a tse'æktɛns, flat, short things standing up in a row.
208. .s.ntsakaus(tcɪ'n) tɛk .stlatũ'kuka
Split in half having spikes.
209. .stɪl tɛk .s.ntoxtoxiæktɛn⁵⁵ tɛk tɛɪ'kst, horizontal line with hanging down from lines things fine.
210. .skɪ'ts tɛk .stōxtō'x^u, thing across having things suspended.
211. .s.nhahɪ'tla ũ'a skwō't, notched to one side.
212. .skwotæɛk tɛk .s.nhahɪ'tla, one side of line having notching.
213. .skwotæɛk tɛk .s.nhahɪ'tla .s.nhosta'p .s.nhahɪ'tlas
One side line notched bottom down its notches.

NOTES TO LIST OF GEOMETRIC TERMS

1. tɛxō's, .stɛxō's, .stoxō's, to go in a straight line or direction. Cf. toxtō'xt, straight, true, and tɛ'tox, correct, true.
2. Cf. .stsɛ', standing in a row; tsɛ'ex, to stand (plural); to stand still, as applied to people and animals; -āks, suffix meaning point or nose.
3. hā'tlɛm, to go up, ascend; -qai.n, -qain, head, top, protuberance; also rounded thing.
4. Cf. .skā'z, error, deviation.
5. .s, prefix making the word a noun; -i, good, really ia; h, introduced for euphony; -ɛltɪ, -a'ltɛ, suffix meaning body; right side of the body.
6. Cf. also kwā'uɛm, to set adrift; kwā'ut, to drift, drifting.
7. Cf. zɪ'k, a log; zɪ'kt, to fall over, usually said of something ordinarily vertical; -qɛn, head, top, cf. -qai'n.
8. a'ka, spike, branch, finger, etc.
9. Cf. .stlā'k^u, nailed; -ka, see -ā'ka.
10. -tcɪn, mouth, aperture, large notch, indentation.
11. Cf. .sqɛ'u, .ske'au, broken, but not completely off.
12. Cf. .skolɪ'tz, skolō'tz, crooked, ascending zigzag.
13. Cf. .sqɛ'u, .ske'au, .skaiũ'wa, hook.
14. -ō'ɛ, real, proper, common.
15. Cf. .skɪ'ts, .skɛ'ts, across, crosswise, at right angles; -ap, bottom, foundation.
16. .stlɛkɪ'm, jutting out, projecting.
17. mɛnā'us, both ways, both sides; -ā'us, way, road, path; middle; also; together.
18. -tɛn, -tɪ'n, thing, object.
19. .si-, stem of se'ia, two; -āɛk, -āi'ɛk, -ā'iuk, long narrow object.
20. kɪ'kat, kɛ'kat, near, close; -ɛm, verbal ending; -ɛntwā'uɪ^u, each other.
21. kakā'u, far, distant.
22. sisiā'ɛk, in twos.
23. .stlkā'us, together.
24. tcũ'u, inclining to, rather.
25. mūs, four.
26. kikɛ'kat, (plural form, see note 20).
27. xɛ'nɛx, xɪ'nɛx, square, having corners (a plural form); cf. .snɪ'x, corner.
28. Cf. laā, to come close, to be within touch; .slā', close, touching; lałā'.t, close, very near; -ũimɛx, ground, earth.
29. Cf. note 9.
30. Cf. .shātɛ, .s.ā'tɛ, tied or fastened to something.
31. Cf. .sā'kq, fastened or buttoned.
32. Cf. nxostɛqai'.n, to come down from a high place; so'xost, to descend.
33. -s, its (possessive suffix).
34. tlō, tlō-, surely, certainly, completely.

35. .sū'lɣ^u, inside; .nū'lɣ^u, inside; to go inside; ū'lɣ^u, to go in, enter, penetrate; -h, -hw, -w, often demanded in the middle of certain words for the sake of euphony.
36. -qē'qen, diminutive of -gai.n, and qen. See notes 3 and 7. Cf. .sha't, .shí't, .sɣí't, having a hole; .sxetk, .sxa'tí'k, .sēxtí'k, .saɣ'tú'k, a hole.
37. A diminutive of .sɣit, having a hole.
38. .slamí'k, spot, blotch.
39. .span, folded, doubled up; .spenā'us, doubled ways.
40. .skwō't, one side, opposite side.
41. .stlūp, twisted, snarled.
42. .sqōō'tz, crooked.
43. .tcamē'mat (a plural form; singular kwomē'ma, small); .tcemtcemē'mat, diminutive form.
44. .s'hí't, .sɣí't, notched; .sxítí, notch.
45. .stsūɣ^u, drawn in, contracted, long drawn out; .stsuxhwā'ks, gradually tapering to a long point, somewhat pear-shaped.
46. .nā'ux^u, very much, overly.
47. .skí't, cut off short, lopped off, reduced to a stub; .skitū'ɣ^u, piece cut off short, part of a long piece.
48. .tla'ni, tla'ne, ear; -ani (a suffix meaning ear).
49. .tcōkok, joined, united.
50. -äist, stone.
51. .smōk, in a group.
52. .sō'k, channel, incision, valley.
53. .sē'x, incised.
54. .uxti'p, to the end, full length.
55. Cf. .ntōxiäekten, pendant; .stō'x, hanging down, suspended.

SOME ADDITIONAL TERMS

- tsetseca'n.ns, with edges or borders the same length.
 tsetsefenē'ut, with sides the same length.
 tsitsē'a .nk.otlenē'uts, with sides the same length.
 .steuwe's .nk.otlenē'uts, with equal sides.
 zā'xt .nk.otlenē'uts, long sided.
 etlkē'kat .nk.otlenē'uts, short sided.
 etlkē'kat a skwōt zāxt a skwōt, one side short and the other long.
 .stexō's a skwō't el .skoō'tz a skwō't, one side straight and the other crooked.
 .stexō's tek tsisē'a, parallel, going equally in one direction.
 .stexō's, in a straight line, going straight.
 toxtoxä'iek, straight line.
 .szí'l, in a circle, completely around, forming a circle.
 za'nem, to go in a circle.
 zenaza'nem, to go around and around (but not entwining, or wrapping around a thing).
 .stlūpiä'ek, snarled or twisted line, irregular line.
 sqō'tsiäek, crooked line.
 zā'xiäek, long line.
 .smū'tsiäek, bent or curved line.
 ke'nementwā'ux^u, touching each other.
 kakauementwā'ux^u, far apart, distant from each other.
 tsetsē'a .skakauementwā'ux^us, equidistant.
 tsetsē'a .skekatementwā'ux^us, near or close to each other.
 si'wixementwā'ux^u, at right angles, deviating from each other.
 .stō'xiäek, pendant line.

RAPIDITY OF WORK

In order to estimate the rapidity with which the women made stitches, plain, beaded, or imbricated, Mr. Teit observed each one several times for periods of five minutes, a term decided upon because in shorter intervals the variation was too great owing to the time consumed in moistening the coil and sewing splints and inserting new coil material. An effort was made to observe them when working with especially long splints, when the number of necessary interruptions would be minimized. All of the workers appeared to be proceeding at a leisurely rate of speed. There was a slight variation in the number of stitches finished during the different times each woman was observed, so that the result as given here is only an average.

Informant	Number of unimbricated stitches on sides of baskets	Number of unimbricated stitches on bottoms of baskets	Number of imbricated stitches on lids	Remarks
No. 1 -----	10-11	8	-----	Considered a fairly fast worker but not a good craftswoman; careless.
No. 2 -----	8- 9	7	-----	In all respects considered mediocre and rather slow.
No. 3 -----	15-16	10-11	10	Considered a fast and good worker; careful.
No. 4 -----	11-14	8- 9	-----	Fairly fast and careful.
No. 5 -----	12	8	-----	Do.
No. 6 -----	9	-----	-----	Average in all respects.
No. 7 -----	10	-----	-----	Do.
No. 9 -----	13	-----	-----	Considered fairly fast and careful.
No. 10 -----	12	-----	-----	Considered quite fast and careful.
No. 20 -----	9-12	-----	-----	Medium in all respects; careful.
No. 21 -----	10-16	-----	-----	Considered a good worker, fast and careful.
No. 24 -----	14-17	7-10	-----	Fast, good, and careful.
No. 25 -----	10-20	-----	-----	Very fast and good formerly (now eyesight defective).
No. 28 -----	-----	8-12	-----	

In one-minute periods No. 25 occasionally made four stitches on the side of a basket. When she wet the splints and coil the number dropped to three, and when she wet her material and also added new coil splints she was able to make only two. Once she experienced some difficulty in passing the end of the sewing splint through the awl hole and only accomplished one stitch. No. 1 made six coils on the bottom of a burden basket, which measured 4 inches in width, during a space of one and one-half hours. The bottom was of the elongated watch-spring type.

IMBRICATED STITCHES

Informant	Number of stitches	Remarks
No. 1-----	9	
No. 2-----	7	
No. 3-----	13	Once put in a different color.
No. 4-----	8-9	About 8 when changing colors and 10 to 11 without interruption.
No. 5-----	9-10	Once added a new color.
No. 6-----	8	Do.
No. 9-----	10	
No. 10-----	8-10	
No. 21-----	12	Do.
No. 24-----	12-14	
No. 25-----	10-15	10-12 when changing colors or 13-15 without interruption.

No. 25 stated that the stitching of four or five coils on the side of a burden basket, where common imbricated patterns were placed on a plain background and the designs were not intricate, constituted a good day's work for an expert. If she worked very long hours, she might finish an additional coil.

BEADING

Informant	Stitches	Remarks
No. 1-----	9	In some cases this included the changing of colors, but this was not taken into consideration at the time the observations were made.
No. 3-----	11-14	
No. 4-----	9	
No. 5-----	11	
No. 6-----	8	Beading appears to be accomplished somewhat more rapidly than imbrication.
No. 20-----	10	

BASKET SHAPES OF TRIBES OF THE INTERIOR

LAKE TRIBES

The Lake tribes used the Thompson type (fig. 26, *e-g*) large boiling and water baskets, all the varieties of Figure 27, *a-d*, and the robin nest shape, Figure 28, *c*. These ranged in size from large baskets holding a number of gallons down to cups.

They had the nut-shaped type, Figure 28, *e*, in several slightly different forms. They also used different sizes of elongated baskets like type of Thompson, Figure 29, *e*.

The carrying basket was of two shapes, the larger kind approximating to the old style of the Klickitat, but possibly not quite as deep in proportion to its width, and the other, generally the smaller kind, similar to the birch bark, with almost straight sides and bottom, and rounded mouth. The latter was only a little wider than the

bottom. The bottoms of these shapes were of the slightly elongated watch-spring variety. It seems that trays were not used. All of the foregoing information is from Indian description and rough sketches made by them from memory. No examples were seen.

COLUMBIAS (MOSES-COLUMBIAS)

The Columbias used burden baskets like those represented in Figure 26, *a* and *b* (p. 198) of the Thompson, but had none like the form shown in *c*. They also used some carrying baskets shaped like Thompson cups but of large size, and as a rule with slightly larger bottoms in proportion to their depth and width. They were probably the same as those used by the Lake and the older ones of the Klickitat. This is a type that appears to have been universal among the interior Salish of the South. The Columbias also employed the bowl and nut shaped baskets.

It is uncertain whether other types were made. This information applies also to the Wenatchi, according to the Columbias, but the informants there think they made more varieties of shapes.

SANPOIL AND NESPELIM

All carrying baskets were of the old Klickitat type, but there was some variety. They all had circular mouths. Trays like those of the Thompson were used for food and berries and elongated ones for holding fish and meat. Some were very long.

The water and nut baskets were the same as those of the Thompson.

COMPARISON OF SHAPES—THOMPSON, KLICKITAT, AND LILLOOET

The following notes on shapes of baskets obtaining among the Thompson, Lillooet, and Klickitat will give an idea of the relative numbers of the different kinds in use at the present day. They are from notes on baskets and basketry designs made during the last few years by Mr. Teit. The great majority of the baskets were in the possession of Indians. They do not include specimens at present in any collection.¹

¹ In striking contrast to the Thompson and Lillooet, the Chilcotin make only one type of basket, the burden basket, which varies very little in shape and is similar to that of the Thompson. The notes on the Klickitat shapes are not complete.

Type of basket	Thomp- son	Klickitat	Lillooet
Burden baskets (fig. 26, <i>a</i> , <i>b</i> , and others ap- proximately to <i>c</i> , <i>d</i>).	91	0	8
Burden baskets, oblong and with very consider- able flare (fig. 26, <i>d</i>).	6	0	0
Burden baskets, square, with very sharp cor- ners (fig. 26, <i>c</i>).	2	0	23
Small and like the bottom parts of preceding (fig. 26, <i>h</i> , <i>i</i>).	3	1(?)	0
Oblong and square:			
Fig. 29, <i>a-c</i> -----	8	0	2
Fig. 29, <i>d</i> -----	2	1	(like <i>a</i>) 0
Fig. 29, <i>e</i> -----	1	-----	2
Fig. 31, <i>b</i> , <i>c</i> , some square, others oblong----	35	0	10
Flat backed-----	1	0	0
Fancy (four of them wineglass shape)-----	16	0	4
Circular:			
Fig. 26, <i>e-g</i> -----	2	1	2
Fig. 27, <i>a-d</i> (from capacity of a coffee cup to about 1 gallon or a little over).	28	(medium) 16 (mostly like <i>a</i>)	6
Fig. 27, <i>f</i> -----	2	3	4
Fig. 27, <i>g</i> (rather large)-----	2	0	2
Fig. 31, <i>a</i> -----	1	3	3
Fig. 28, <i>e</i> -----	19	3	4
Fig. 28, <i>c</i> -----	1	0	1
Trays-----	8	0	0
Common Klickitat type, conical with small bottom and high, nearly vertical sides.	0	10	0
Common Klickitat type, conical, lower and wider in proportion to height. ¹	0	9	0
Baskets with lids-----	21	-----	15
Baskets with feet or stands, mostly like Fig. 31, <i>b</i> , <i>c</i> .	48	-----	6

¹ These approximate to Fig. 27, *a*, *d*, of Thompson, but are larger and higher in proportion to their width.

THOMPSON BURDEN BASKETS, GROUP A

Cat. No. A. M. N. H.	Provenience	Measurements ¹			Ratios ²						
		Mouth	Height	Bottom	H to LB	H to WM	H to LM	WM to LM	LB to LM	WB to WM	WM to LB
					Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
I	16-8828 ³ Nootsak.....	23 by 31	17.5	10 by 14 (oval)	84	134	56	74	45	43	162
	16.1-442..... Thompson.....	35 by 47.5	33	16 by 26	81	106	69	73	54	46	135
	16.1-445..... do.....	35 by 48	32	16.5 by 23.5	80	110	67	73	49	44	149
	16.1-446..... do.....	36 by 47.5	34.5	14 by 21	61	104	73	76	44	39	171
	16.1-447..... do.....	36.5 by 49.5	32.5	16 by 25 (indefinite)	77	106	66	74	50	44	146
II	16-9236..... Lower Fraser.....	32.5 by 49	32	16 by 25.5	80	101	65	66	52	49	127
	16-8834..... Fort Douglas.....	41 by 54	40	16 by 22	54	102	74	76	41	38	186
	16.1-443..... Thompson.....	39.5 by 57.5	40	19 by 30	75	99	69	69	52	49	132
	16.1-451..... do.....	26.5 by 36	24	10.5 by 17.5	76	110	67	73	49	40	154
	16.1-456..... do.....	25 by 36	23.5	11.5 by 19.5	88	106	65	70	54	46	128
III	16.1-550..... do.....	27 by 36	23.5	12 by 16.5	70	115	65	75	46	44	163
	16.1-457..... Thompson.....	27.5 by 37	24.5	13 by 17.5	71	112	66	74	47	47	157
	16.1-466..... do.....	27 by 36.5	24+	13.5 by 21	88	112	66	74	57	50	128
	16-8823..... do.....	28 by 37.5	25.5	12 by 19	74	113	68	75	51	43	147
	16.1-448..... do.....	30 by 40	27	15 by 22	82	111	67	75	55	50	136
	16.1-454..... do.....	28 by 38	26	12 by 18.5	75	107	70	73	49	43	151
IV	16-4624..... Lower Thompson.....	28.5 by 39	30	12 by 17 (indefinite)	56	95	77	73	43	42	169
	16-8825..... Thompson.....	29.5 by 39	29	14 by 20	66	103	74	75	51	47	147
V	16.1-464..... do.....	22.5 by 30	19	9.5 by 17	89	116	63	75	57	42	132
	16.1-465..... do.....	30 by 40.5	28.5	11.5 by 21.5	75	105	70	74	53	38	139
	16.1-463..... do.....	25.5 by 31.5	22	12.5 by 18	81	110	70	81	57	49	142
	16.1-467..... do.....	24.5 by 33	20.5	9.5 by 17	84	120	62	74	51	39	144
	16.1-468..... do.....	26 by 34	23	11.5 by 18.5	80	113	67	76	54	44	140
	16.1-470..... do.....	21 by 28	17	10 by 16 (irregular)	94	124	61	75	57	48	131
VI	16-1253..... Yale.....	26 by 34	23	11 by 17	74	113	68	76	50	42	153
	16.1-1273..... (?).....	19.5 by 27.5	17.5	11 by 17	97	111	64	71	62	57	115
	16-9150..... Thompson.....	31 by 40	25	14.5 by 20	80	125	62	77	50	47	155
	16-9543..... Lower Thompson.....	23 by 30	21	10.5 by 17	80	109	70	76	56	46	135

THOMPSON BURDEN BASKETS, GROUP A B ⁴

16.1-462.....	Thompson.....	23 by 30.5	21.5	9.5 by 16	75	107	70	75	52	41	144
16-4625.....	Lower Thompson.....	26 by 34.5	34	13 by 18.5	77	108	69	75	53	50	140
16-9582.....	Lower Fraser.....	25 by 33	24	10 by 15	70	104	73	76	45	40	180

¹ The measurements are in centimeters; those of the height vertical projection.

² B=bottom; LB=length of bottom; WB=width of bottom; H=height; M=mouth; LM=length of mouth; WM=width of mouth.

³ The braces indicate subgroups in shape. Nos. I and II have small bases, flaring sides which are turned to vertical halfway up. The rims are oblong, the corners rounded. III, medium size, sharper corners. IV, medium, oval corners. V, shallow, small, square corners. VI, small and much more square.

⁴ These types are intermediate. Their sides are more flaring. There are several others belonging to this group the measurements of which were not obtained.

THOMPSON BURDEN BASKETS, GROUP B⁵

Cat. No. A. M. N. H.	Provenience	Measurements			Ratios						
		Mouth	Height	Bottom	H to LB	H to WM	H to LM	WM to LM	LB to LM	WB to WM	WM to LB
					<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
VII	16-8822 Thompson	38 by 48	34	14 by 24.5	92	102	70	73	51	40	143
	16.1-439 do	39 by 52.5	35.5	16.5 by 27	75	109	67	74	51	42	144
	16.1-441 do	34.5 by 47	32	17 by 26.5	83	108	68	73	56	49	126
	16.1-444 do	32 by 42.5	31.5	11 by 19	60	101	74	75	45	34	168
	16.1-450 do	33 by 44.5	30.5	13 by 21	72	107	68	74	49	40	157
VIII	16.4-440 do	35 by 46	27	18.5 by 33.5	125	131	60	76	73	53	104
	16.1-449 do	31 by 43	27	13 by 21	78	114	63	72	49	42	147
	16.1-452 do	28.5 by 38.5	25	11.5 by 18.5	76	112	65	74	48	40	154
	16.1-459 do	28 by 36	25	11.5 by 18	71	112	66	78	50	41	155
	16-8830 do	23 by 29.5	18	11.5 by 16.5	92	127	61	78	56	50	139
IX	16.1-458 Thompson	26 by 35.5	23	13.5 by 22	96	113	65	73	62	52	116
	16.1-4614(?) Lower Thompson	20 by 29	16	11.5 by 20	125	125	55	70	84	77	100
X	16.1-461 Thompson	21.5 by 27.5	19	9 by 14.5	80	112	70	78	53	42	148
	16.1-469 do	25 by 33.5	23	11 by 17	74	109	69	74	51	44	147
	16-1287 Yale	13 by 17	11.5	7.5 by 10.5	91	115	68	78	51	42	126
	16-8737 Thompson	19 by 23.5	14.5	8 by 14.5	100	129	62	81	62	42	146

⁵ These have flaring sides and ends, with rounded corners, which, however, become quite sharp at the rim. VII, large or medium; VIII, shallow for length and width; IX, straighter walls, very oblong; X, squarer forms, very sharp corners, medium flare.

THOMPSON BURDEN BASKETS NOT GROUPED AS TO SHAPE

Cat. No. A. M. N. H.	Provenience	Measurements			Ratios						
		Mouth	Height	Bottom	H to LB	H to WM	H to LM	WM to LM	LB to LM	WB to WM	WM to LB
					Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
16-1043		23 by 32.5	21.5	14 by 20.5	95	107	66	70	63	69	107
16-1255	Yale ¹	33.5 by 42.5	17	26.5 by 37	217	200	40	79	87	79	90
16-1256	Yale	24.5 by 34.5	17			143	49	71			
16-1270		25 by 37.5	17	14.5 by 22.5	133	150	45	67	60	58	111
16-4603	Lower Thompson	38 by 51	36.5	16 by 26	74	104	71	74	51	42	148
16-4605	do	18 by 26	14.5	11 by 16	110	126	56	70	61	61	113
16-4607	do	26 by 35	23.5	14 by 22	94	110	67	74	63	53	118
16-4608	do	27.5 by 38	24.5	13.5 by 23.5	95	112	64	72	62	49	110
16-4609	do	31 by 41	31	14 by 22.5	76	100	75	75	55	45	138
16-4610	do	35 by 49	36.5	13.5 by 21.5	60	96	74	71	44	38	111
16-4611	do	35 by 51	37	16 by 28.5	77	95	72	68	56	46	123
16-4612	do	30.5 by 42	30	14 by 22	73	101	71	72	52	46	138
16-4613	do	29.5 by 39	25.5	11.5 by 23	90	115	65	75	59	39	128
16-4621	do	19.5 by 35.5	18.5	15 by 30	160	105	52	55	84	77	65
16-4622	do	27 by 37	25.5	15 by 28	110	106	69	73	75	55	96
16-4626	do	16.5 by 26	14	12 by 23	158	113	54	63	88	73	72
16-4637	do	39 by 55.5	35.5	21 by 39	109	109	64	70	70	54	100
16-4638	do	35.5 by 50.5	37.5	16 by 28.5	88	94	74	70	56	45	128
16-4638a	do	30.5 by 41.5	27.5	13 by 21.5	78	111	66	73	52	42	142
16-4862	Thompson	23 by 30.5	19.5	10.5 by 17.5	89	116	64	75	57	45	131
16-5973	do	27.5 by 39.5	28	13.5 by 18.5	75	98	71	69	47	49	148
16-8000	do	29 by 38	24.5	13.5 by 24	98	117	64	76	63	46	120
16-8001	do	33.5 by 41	29	13.5 by 23	80	115	71	82	56	40	145
16-8372	do	30.5 by 40	30.5	14 by 19	65	100	76	76	47	46	160
16-8731	do	29.5 by 40.5	27	13 by 21.5	77	109	66	73	53	47	137
16-8732	do	27.5 by 38.5	24.5	11.5 by 23.5	98	106	63	71	61	40	117
16-8734	do	26.5 by 35	18	11.5 by 22.5	135	148	51	76	64	43	118
16-8736	do	21.5 by 26	15.5	8 by 14.5	94	138	59	83	55	37	148
16-8737	do	19 by 23.5	14.5	8 by 14.5	100	129	62	81	62	42	131
16-8824	do	30.5 by 39.5	29.5	14 by 18	70	103	74	77	45	46	169
16-8826	do	33 by 43.5	34	12.5 by 21	62	103	78	76	48	38	157
16-8829	Nootsak	23.5 by 27.5	20.5	11 by 14.5	68	114	74	85	53	47	162
16-8830	Fraser	23 by 29.5	18	11.5 by 16.5	92	133	61	78	56	50	139
16-8835	Thompson	36.5 by 52.5	37	17 by 27	73	99	70	69	51	46	135
16-8836	Fort Douglas	24 by 29	20.5	12 by 16	88	112	71	83	55	50	150
16-8837	do	30 by 39.5	27.5	13 by 20.5	76	108	69	76	52	43	146
16-8877	Thompson	29.5 by 41.5	27(?)	(?)			65	71			
16-9140?	do	27 by 37	25	12.5 by 20	80	108	67	73	54	46	135
16-9540	do	29 by 40	27	13 by 22	81	107	67	72	55	45	132
16-9541	do	22.5 by 34	20	11 by 21	95	113	59	66	62	49	107
16-9542	do	25 by 36	25	15.5 by 22	88	100	73	70	61	62	113
16-9629	do	29 by 35.5	23.5	13 by 19	78	123	66	81	53	45	152
16-9631	do	15 by 19.5	13	7 by 13	100	115	66	77	66	46	115
16-9633	do	16.5 by 22.5	11	8 by 11	100	150	49	73	49	48	150
16.1-27		28.5 by 46	² 20.5	¹ 17 by 30.5			46	63	68	59	93
16.1-473	Thompson	³ 22 by 28.5	17	9.5 by 14.5	87	130	59	77	51	43	152
16.1-1580	do	29.5 by 40	28.5	11.5 by 16	57	103	71	74	40	39	184

¹ This bucket is obviously a freak and should be omitted from the calculation.² The confines of the bottom are indefinite.³ The rim is irregular.

The calculations were based on 94 baskets in the collection of the American Museum of Natural History.

The ranges and averages for the various ratios as found for the three groups A, B, and that comprising the remaining lot which could not readily be classified according to shape, are given in the table below. The little group AB is too small to be of value, and several representatives belonging to it could not be measured because of their worn condition.

Ratios	Group A (28 baskets)		Group B (16 baskets)		Undifferentiated (47 baskets)	
	Range	Average or preponderance	Range	Average or preponderance	Range	Average or preponderance
Length of bottom to height.	<i>Per cent</i> 50- 95	80 per cent average.	<i>Per cent</i> 60-125	No preponderance—1 tall (a freak), 8 medium, 2 very shallow, 5 height and length of bottom equal.	<i>Per cent</i> 57-160	Scattering. Slight preponderance at 75 per cent; 4 cases 130-160; the others between 57 and 110 per cent.
Width of mouth to height.	95-135	110-113 per cent.	103-131	2 groups—12 with average at 108, 4 around 125 per cent.	90-150	35 between 90 and 120 per cent, with preponderance at 108 per cent; 9 scattered quite evenly from 125 to 150.
Height to length of mouth.	55- 75	65 per cent average.	55- 74	65 per cent average.	40- 75	70 per cent.
Width of mouth to length of mouth.	65- 80	74 per cent average.	70- 81	75 per cent average.	55- 85	72 per cent.
Length of bottom to length of mouth.	40- 62	49 per cent average.	¹ 45- 55	53 per cent average.	44- 85	38 of these ranged from 44 to 65 per cent and averaged about 55 per cent; 5 others were scattered between 70 and 85 per cent.
Width of bottom to width of mouth.	38-57	41 per cent average.	² 34- 53	42 per cent average.	35- 74	49 per cent average.
Width of mouth to length of bottom.	115-185	Scattering.	100-165	Scattering.....	65-184	Very scattering.

¹ There was one basket in which this ratio was 84 per cent. Several of its measurements were incongruous, so it was rejected from this calculation.
² The same odd basket. The ratio was 77 per cent.

The opinions of some of the informants regarding proper proportions are here reduced to the simplest indications:

Informant	Type of basket			
	Tsi.'a	Tsihetsa	Spa'nèk	Spap'ènek
9	H = LB LB = ½ LM WB = less than ½ WM	H = 2 WB or a little less. LM = 1½ LB H = WM	H = LB	
24	H = LB LB = ½ LM WB = less than ½ WM	H = 2 WB or a little less. LM = 1½ LB H = WM	H = LB	
29	H = LB+	H = LB+	H = LB+	H = LB+
22	H = LB+ WB = ½ LB or a little more.			

It will be seen that for the three most common types or sizes of burden baskets they are agreed that the height and the length of the bottom are approximately the same or that the height exceeds the length of the bottom by a very small amount. In the majority of baskets of all classes the length of bottom actually is from 75 to 80 per cent of the height of the walls, the range being from 50 to 160 per cent. The extremes are evidently of another class.

Two of the informants stated that the length of the bottom was half that of the mouth for the tsi.'a and two-thirds of the length of the mouth for the tsihetsa. In this measurement they were more nearly correct. In group A the range is 40-62 per cent, with an average of 49 per cent; in group B, 45-55 per cent, average 53 per cent; in the undifferentiated group 44-85 per cent, the majority averaging about 55 per cent, with five over 70 per cent.

The width of the bottom was declared by the same two women to be less than half that of the mouth for the tsi.'a.

Since they stated that for the tsihetsa the height was equal to the width of the mouth, or to twice the width of the bottom, or a little less than that, we should expect the width of the mouth to equal twice that of the bottom, or not quite that. Thus, for both types the ratio of the width of the bottom to that of the mouth should lie between 40 per cent and a little more than 50 per cent. As a matter of fact, it does. In group A the range is 38-57 per cent, with an average of 41 per cent; in group B, 34-53 per cent, with an average of 42 per cent; in the undifferentiated group, 35-74 per cent, with an average of 49 per cent.

Only for the tsihetsa have these two women remarked that the height about equals the width of the mouth. None of the others mentioned it. As a matter of fact, the ratio is surprisingly constant for all types, the average lying for the three groups studied between 108 and 113 per cent for the ratio of the width of the mouth to the height as standard. Very few exceed 120 per cent. Allowing the addition of about 10 per cent for an overestimation of the vertical line as compared to the horizontal, this would about equalize their apparent lengths. That this ratio should not have been more generally noted is rather surprising. As a corollary of this, no notice has been taken of the ratio of the height to the length of the mouth, which is also fairly constant, because of the relationship of the proportions of the mouth. Here the almost fixed ratio of 74 or 72 per cent between the width and length obtains. The failure of the women to notice this has been remarked upon elsewhere.

The length of the bottom is such a variable quantity that no satisfactory result was secured concerning its ratio to the width of the mouth. In fact, it will be generally found that all ratios involving one of the bottom measurements are subject to a wide range of variation.

LILLOOET BURDEN BASKETS

Cat. No. A. M. N. H.	Measurements			Ratios						
	Mouth	Height	Bottom	H to LB	H to WM	H to LM	WM to LM	LB to LM	WB to WM	WM to LB
				Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
16-5886	36.5 by 48.5	27	24 by 40.5	150	135	55	75	83	66	90
16-5902	42 by 50	39.5	11 by 19.5	49	106	79	84	39	26	215
16-5903	36 by 44.5	34	12.5 by 18.5	54	106	76	81	41	35	194
16-5904	35 by 43	32.5	11.5 by 17.5	54	108	75	81	41	33	200
16-5905	33 by 40.5	29.5	11.5 by 14.5	49	112	73	81	36	35	227
16-5906	34.5 by 41	30.5	10.5 by 16	52	113	74	84	39	30	215
16-5907	35 by 41.5	32	10.5 by 15.5	48	109	77	84	37	30	225
16-5908	33 by 40	30.5	12.5 by 16.5	54	108	76	82	41	38	200
16-5909	30.5 by 36	27.5	10.5 by 15.5	56	111	76	85	43	34	197
16-5910	31.5 by 36.5	28	11 by 15	53	112	76	86	44	35	210
16-5911	21.5 by 26	16.5	8 by 11	66	130	63	83	42	37	185
16.1-483	39 by 51.5	35.5	15 by 22.5 (indefinite)	63	109	69	76	44	38	173
16.1-484	33 by 43	30.5	11.5 by 17	55	108	70	78	39	35	194
16.1-485	34.5 by 47.5	31	15 by 22	71	111	65	73	46	43	156
16-5888	27 by 54	21	23 by 50	238	128	39	50	93	85	54
16-5889	19 by 25	12.5	14.5 by 23.5	188	152	50	76	94	76	80
		(with lid)								
16-5890	13.5 by 26	12.5	10 by 23	184	108	48	52	88	74	60
16-5891	10.5 by 23.5	12.5	10.5 by 24	192	84	53	45	101	100	44
16-5892	15 by 31	12	9 by 26	216	125	39	48	84	60	57
16-5893	9.5 by 20.5	12	8 by 19.5	162	79	58	46	95	84	49
16.1-486	31 by 41	27+	11.5 by 17.5	65	115	65	76	43	37	177
16.1-487	34 by 50	33	14.5 by 23 (very indefinite)	70?	103	66	68	46?	43	148
16.1-488	27.5 by 37.5	25.5	13 by 19	74	108	68	73	51	47	145
16.1-489	29 by 37	25	12 by 16.5 (indefinite)	66?	116	67	78	45	41	175
16.1-490	28.5 by 38	26.5	12 by 19 (indefinite)	72?	107	70	75	50	42	150
16.1-491	30 by 40.5	27.5	14.5 by 20.5 (indefinite)	75?	109	68	75	51	48	146
16.1-492	31.5 by 43	28	14 by 22.5	80	112	65	75	52	45	140
16.1-493	27.5 by 37	26	12 by 17 (woven rectangular bottom)	65	106	70	14	46	44	160
16.1-494	29 by 38.5	27.5	11 by 16.5	60	105	71	75	43	38	175
16.1-495	27.5 by 37.5	23.5	11 by 16.5	70	117	63	73	44	40	166
16.1-498	25 by 31.5	25.5	9.5 by 14 (woven rectangular bottom)	55	98	81	79	44	38	178
16.1-499	24.5 by 28.5	20.5	10 by 13 (very irregular shape)	63	119	71	86	46	41	188
16.1-500	18 by 24	16	7.5 by 10	62	112	66	75	42	42	180

The calculations were based on 33 baskets in the collection of the American Museum of Natural History.

The ranges and averages for the various ratios have been assembled in a manner similar to that used for Thompson specimens.

LILLOOET BURDEN BASKETS

Proportions	Ranges	Averages	Preponderances
	<i>Per cent</i>	<i>Per cent</i>	
LB to H.....	48- 80	61	Scattering.
WM to H.....	¹ 98-119.	108	Around 108 per cent.
H to LM.....	63- 81	70	From 65 to 75 per cent.
WM to LM.....	68- 86	78	From 75 to 85 per cent.
LB to LM.....	36- 52	43	From 40 to 45 per cent.
WB to WM.....	26- 48	38	From 35 to 45 per cent.
WM to LB.....	140-227	-----	Very scattering, with slight preponderances at 145 per cent, 175 per cent.

¹ With one odd basket at 130 per cent.

DESCRIPTIONS OF DESIGN ELEMENTS

As an illustration of the exactness with which any design arrangement or combination may be described, the following list of terms as applied to arrowhead design arrangements has been collected by Mr. Teit:

1. Arrowhead design (alone, single, here and there). Sketches 222-229, 231, 232, 839.
2. Arrowhead design (in twos, here and there, in threes, fours, groups).
3. Arrowhead design (notched sides or ears, alone, here and there, with the different varieties of arrowheads). Sketch 839.
4. Arrowhead design (common, real). Sketch 225.
5. Arrowhead design (plain, simple). Sketches 222, 225.
6. Arrowhead design (mounted). Sketches 231, 232.
7. Arrowhead design (worked, ornamented, variegated, embroidered). Sketches 223-229, 251, 532.
8. Arrowhead design (blade, stone, flint, spear, knife, head). Sketches 268, 547.
9. Arrowhead design (blade, stone, flint, spear, knife, head with star filling). Sketches 268, 271.
10. Arrowhead design (in file).
11. Arrowhead design (extended, horizontally). Sketches 222-225 with proper arrangement.
12. Arrowhead design (in a line).
13. Arrowhead design (following each other). Sketches 222-225. Points all one way, vertical rows.
14. Arrowhead design (points up) }
15. Arrowhead design (points down) }(following one another).
16. Arrowhead design (ascending end, point nose).
17. Arrowhead design (descending end, point nose).
18. Arrowhead design (hanging, same as 17).
19. Arrowhead design (points standing, i. e., in a horizontal row, especially on a base line; also touching close, apart, and the kind of arrowhead). Sketches 264-267.
20. Arrowhead design (points sticking up). Same as 19.
21. Arrowhead design (points protruding, meaning on a base line, points up or down).
22. Arrowhead design (points both sides). Sketches 264, 265, 267, arranged both sides of a line.
23. Arrowhead design (points leaving each other, on both sides). Sketches 264-266.

24. Arrowhead design (points both sides meeting each other) } Sketch 273.
25. Arrowhead design (points both sides reversed) }
26. Arrowhead design (points meeting, see 24). There is no line and the design is not considered two sided. Sketch 271.
27. Arrowhead design (points opposite, not touching). Sketch 272.
28. Arrowhead design (points crossing or passing each other). Sketches 268, 274.
29. Arrowhead design (on both hands) { Divided in half by lines or spaces; especially vertical series. Sketches 278, 281,
30. Arrowhead design (both sides, two sided) { 284, 285, 302, 329, 330.
31. Arrowhead design (all over) } either open or connected arrangement.
32. Arrowhead design (entire surface) }
33. Arrowhead design (all over, bases touching each other) } Sketch 244.
34. Arrowhead design (all over, side by side, points up or down) }
35. Arrowhead design (inclosed, within lines). Sketches 251, 257, 292.
36. Arrowhead design (in bands or stripes of even width). Sketches 246, 301.
37. Arrowhead design (points touching, hanging or descending) } Sketches 245,
38. Arrowhead design (following each other, hanging or descending, open or closed arrangement). } 246, 249.
39. Arrowhead design (entering base of each other, ascending, descending, overlapping). Sketches 252, 254, 533.
40. Arrowhead design (broken point) } Sketches 250, 254.
41. Arrowhead design (hidden point) }
42. Arrowhead design (points overlapping, or over bases). Sketches 252, 254, 533.
43. Arrowhead design (blade entire, double ended, diamond shaped arrowstone blade). Sketch 529.
44. Arrowhead design (entire, double ended, points connected) } Sketch 529.
45. Arrowhead design (tied ends, connected). }
46. Arrowhead design (one long thing, stalk, vertical, horizontal, standing, hanging). See also Nos. 35, 36.
47. Arrowhead design (two, both sides, hanging, standing, vertical).
48. Arrowhead design (points entering each other), interlocking triangles.
49. Arrowhead design (embracing, interlocking). Sketch 332.
50. Arrowhead design (points entering between each other a little apart). See No. 28. Sketch 268.
51. Arrowhead design (compressed, pinching, i. e., designs which interlock and form arrowheads from any point of view). Sketches 302, 332, 336, 529.
52. Arrowhead design (intertwining). Sketch 298.
53. Arrowhead design (heaped up). Sketches 139, 141-143, 146.
54. Arrowhead design (tied middles). } Sketches 240, 241.
55. Arrowhead design (bases tied across). }
56. Arrowhead design (twisted). Sketches 294, 296, 318.
57. Arrowhead design (leaning). Sketches 318, 406.
58. Arrowhead design (diagonal, spiral). Sketches 315, 316.
59. Arrowhead design (lying, prostrate). Sketch 307.
60. Arrowhead design (zigzag, connected). Sketch 78.
61. Arrowhead design (zigzag between). Sketches 266, 268, 274.
62. Arrowhead design (crosses between). Sketch 275.
63. Arrowhead design (arrowheads between). Sketches 265, 272, and probably 244.
64. Arrowhead design (with arrowhead edges [or wings]). Sketch 301.
65. Arrowhead design (points). Sketches 135, 138.

These terms may be combined in many ways to make the description more definite.

DESCRIPTIVE TERMS FOR ARROWHEAD STAR VARIETIES

- Arrowhead star, 4 points around, ends out. Sketches 319, 608.
 Arrowhead star, 4 points around, ends in. Sketch 609.
 Arrowhead star, 4 points around, ornamented. Sketch 610.
 Arrowhead star, 2 or 4 points, ends in. Sketch 611.
 Arrowhead star, 6 points around, worked. Sketches 541-543.
 Arrowhead star, 4 points around, twisted and ends in. Sketch 311.
 Arrowhead star, 8 points around, four notches. Sketch 615.
 Arrowhead star, 5 points (white man's design). Sketch 666 (?).
 Arrowhead star, serrated or points all around. Sketch 616.

The centers are described as arrowhead center, square center, cross center, round center, no center; and the arrangement in rows, vertical, horizontal, diagonal, scattered.

COMPARISON OF DESIGN ARRANGEMENTS AND ORNAMENTATION

Regarding the relative frequency of the different arrangements of designs on Thompson baskets, and for purposes of comparison with the methods employed by three other well-known basket-making tribes of this region, the Lillooet, Chilcotin, and Klickitat, the following notes are given which Mr. Teit has gathered during a number of years. The Thompson baskets are from all sections of the tribe, undifferentiated; most of them are in the possession of Indians, some belong to small private collections, and some to the museums (chiefly Chicago). The Klickitat baskets were mostly in private collections or in the possession of Indians. The same may be said of the Lillooet baskets, although some of their specimens were seen among bands of the Shuswap.

	Number of specimens		
	Thompson	Lillooet	Klickitat
1. Plain baskets (devoid of both imbrication and beading. This does not include small cup baskets, a number of which are plain, nor baskets made entirely of loopwork).....	2	2	5
2. Baskets with imbrication only ¹	3	2	0
3. Baskets with beading only.....	129	19	No notes.
4. Baskets with some beading as well as imbrication.....	0	2	0
5. Baskets with false embroidery only.....	0	8	-----
6. Baskets with false embroidery and imbrication as well.....	166	21	17
7. Baskets with designs only imbricated....	48	24	29
8. Baskets with entire surface imbricated....			
9. Baskets with upper part imbricated all over, about three-fourths on Thompson, two-thirds on Lillooet (generally upper two-thirds), rest bare.....	7	10	0

¹ This includes the baskets without designs. Mr. Teit does not give any figures.

	Number of specimens		
	Thompson	Lillooet	Klickitat
10. Baskets, upper part all imbricated, lower part designs only (not "droppers"); same as two fields-----	0	7	0
11. Baskets, upper part all imbricated, lower part droppers-----	0	19	0
12. Baskets, upper part designs only imbricated, rest of basket bare (no droppers)-----	1	5	0
13. Baskets having a single field covering the entire surface-----	220	55	51
14. Baskets having two design fields, an upper imbricated (generally only the designs) and a lower beaded-----	3	8	0
15. Baskets with two design fields, upper an imbricated border field, and the lower, the rest of the basket, which is also imbricated, with sometimes a very narrow space between ¹ -----	0	0	0
16. Baskets with two fields (same as No. 10)-----	0	7	0
17. Baskets with three fields, an upper and a lower, all imbricated, and a middle with only designs imbricated-----	1	0	0
18. Baskets with three fields, upper and lower beaded and middle field imbricated-----	2	0	0
19. Baskets with four fields, a main upper and border field and the lower field imbricated, and a middle or lower middle field, only the designs imbricated. As a rule, the lower and the main upper or upper middle fields carry exactly the same design-----	0	0	0
20. Baskets with designs on sides only-----	3	0	0
21. Baskets with designs on ends only-----	0	0	0
22. Baskets with designs on ends different from those on the sides-----	2	5	0
23. Baskets with side designs different from each other (opposite sides different designs)-----	0	6	0
24. Baskets, end designs different from each other-----	0	1	0
25. Baskets, ends and one side same design, other side a different design or bare (no design)-----	0	3	0
26. Baskets with imbricated designs on outside of bottom-----	0	0	0
27. Baskets with bottoms beaded outside (not the beaded line marking division of sides and bottom), nearly all circular baskets-----	7	1	(2)
28. Baskets with designs on inside of bottom; nearly all tray and dish shaped baskets, one bowl, and one small square basket-----	6	0	(2)
29. ² Baskets having only a single imbricated design-----	162	22	36
30. Baskets having two imbricated designs (different from one another)-----	52	38	12

¹ Owing to an error No. 16 is a repetition of No. 10.² Mr. Teit does not give any figures.³ Sixteen other baskets in two U'ta'mq houses had the designs as follows: 5 designs, one; 4 designs, two; 3 designs, two; 2 designs, five; and 1 design, six.

	Number of specimens		
	Thompson	Lillooet	Klickitat
31. Baskets having three imbricated designs (different from one another)-----	9	5	2
32. Baskets having four imbricated designs (different from one another)-----	2	1	1
33. Baskets having five imbricated designs (different from one another)-----	1	0	0
34. Baskets having six imbricated designs (different from one another)-----	0	0	0
35. Designs arranged vertically and connected-----	48	40	3
36. Designs arranged vertically and disconnected-----	29	10	0
37. Designs arranged horizontally and connected-----	38	19	22
38. Designs arranged horizontally and disconnected-----	60	7	10
39. Designs arranged diagonally and connected-----	13	3	5
40. Designs arranged diagonally and disconnected-----	29	1	1
41. Designs that appear horizontal and perpendicular or both-----	28	5	3
42. Designs scattering, or having no regular arrangement-----	13	8	8

NOTE.—Some other baskets having check or fly designs and net designs all over can not well be classed with any of the above. Only baskets with geometric designs are included in this tabulation. Realistic designs are rare and usually occur in detached arrangement.

The lids and feet of baskets are not included in the above list. It seems that beading on rims, sides, and bottoms of baskets is scarce among the Chilcotin and Klickitat and also much less common among the Lillooet than among the Thompson. Mr. Teit has very few notes regarding it, however.

OBJECTS REPRESENTED IN DIFFERENT FORMS OF ART

NATURAL PHENOMENA

Geometric	Conventional	Realistic
Sun Moon Star Lightning Rainbow Rainbow stump Cloud Rain Snow Hail	Moon	

NATURAL OBJECTS

Mountains Lakes Waves Trails		
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OBJECTS REPRESENTED IN DIFFERENT FORMS OF ART—Continued

ARTIFICIAL OBJECTS

Geometric	Conventional	Realistic
Comb		
Pipe	Paint pouch	
Tsené'ka	Tsené'ka	
Hair ribbon		
Necklace	Necklace	
Bead	Bead	
Dentalium		
Moccasin trailer	Moccasin	
Leggings	Moccasin trailer	
Legging fringe	Leggings	
Hat	Legging fringe	
Earring	Hat	
Nose rod		
Blanket		
Packstrap		
Net	Net	
Reel	Fish spear	
Fishhook	Reel	
Root digger	Root digger (?)	
Hammer	Hammer	
	Deer-hoof rattle	
	Snowshoe	
Mesh		
Patch		
Snare		
Deer fence		
Corral		
	Fort, stockade	
Grave box		
Parflèche		Parflèche
Woven bag		Woven bag
	House, earth lodge	
	Tipi	
	Lean-to	
	Girl's lodge	
	Sweat house	
	Ladder	
Ladder		
Step		
Notched log		
Door	Door	
Window	Window	
Cross		Cross
Embroidery		Embroidery
	Bow and arrow	Bow and arrow
	Arrow	Arrow
	Arrow feathers	
Arrowhead points		

OBJECTS REPRESENTED IN DIFFERENT FORMS OF ART—Continued

ARTIFICIAL OBJECTS—Continued

Geometric	Conventional	Realistic
Arrowhead Half arrowhead Spearhead Arrowhead star Iron arrowhead Arrow nock Cord twisted Tsexaksten (girls' frame)	Arrowhead Spearhead Mat design Tsexaksten Lodge pole	Arrowhead Harpoon Drill Bow War club
PLANTS		
Tree Bush Mushroom Lily root (mula) (<i>Lilium columbianum</i>) used as food Xanaxain Berry Moss cake Flower Hatce'ius root	Tree Branch Pine cone (very old) Leaf Fern leaf Sprout or weed Lily root Berry Flower { <div> Flowers differentiated: Clematis Buttercup Paintbrush Columbine Larkspur </div>	 Maple leaf Cactus (<i>Opuntia</i> sp.) used as food

OBJECTS REPRESENTED IN DIFFERENT FORMS OF ART—Continued
ANIMALS

Geometric	Conventional	Realistic
Bear foot	Bear foot	Animal
Beaver	Beaver	Beaver (old)
	Little beaver	
	Dog	Dog
		Little dog (obsolete) ¹
	Deer	Deer
		Deer and net
		Little deer ¹
	Horse	Horse
		Otter (pelt)
Panther	Panther	
Bird	Bird	Bird
	Bird wings (goose, eagle, swallow)	
	Bird tails	
Flying bird (goose, eagle, swallow)	Flying bird	Flying bird
Butterfly	Butterfly	Butterfly
Fly	Fly	
Insect	Insect	
	Dragon fly	
Eagle	Eagle	Eagle
Crow's foot	Crow	Crow
	Swallow	
	Goose	
Duck	Duck	
Snake	Snake or { Bull snake snake { Rattlesnake skin { Striped snake Garter snake	
Snake track		
Caterpillar	Caterpillar	
Hairy caterpillar	Hairy caterpillar	
Woodworm	Woodworm	
Woodworm borings		
Snail (?)		
	Lizard	
		Fish (salmon), rare
		Beetle
Fish backbone		
		Spider
Grasshopper		
Grasshopper leg		
Grasshopper elbow		
Head		People (men, women)

¹ Distinguished from the larger designs of the same name by being small figures arranged diagonally all over the surface.

OBJECTS REPRESENTED IN DIFFERENT FORMS OF ART—Continued

ANIMALS—Continued

Geometric	Conventional	Realistic
Duck's head		Deer's head Sheep's head Ram's horns
Owl's face		
Eye	Eye	
Tooth		
Grizzly bear's tooth		
Mouth		
Heart		
Hand		
Finger		
Hand pointing		
Wing	Wing	
Butterfly wing	Butterfly wing	
Leg, foot	Leg, foot	
Bent leg	Bent leg	
Bent back		
Broken back		
Rib		
Bird's foot		Bird's foot
Grouse foot	Grouse foot	Grouse foot
Grouse tracks	Grouse tracks	Grouse tracks
Deer's hoof	Deer's hoof	Deer's hoof
Bearskin		
Deerskin		
Feather	Feather	
Bird's nest		

GEOMETRIC

Circle	Spiral	Points	Scratch
Half circle	Zigzag	Notch	Cross
Coil	False zigzag	Stripe	Line

DESCRIPTIVE TERMS

Circling	Tied middles	Striped	Together
Crooked	Bent ends or points	Here and there	Side by side
Sharp points	Short end	Ascending end	Following each other
Wide points	Points, corners, or shoulders touching	Lying flat	In file
Square points		Spread sidewise	One above another
Serrated		Ornamented	Double
Intertwining	Almost touching	Radiating	In pairs
Woven	Joining	Expanded	Single turn
Crossed end	Heaped up	Contracted	Hanging
Crossing	Leaning	Two sided	Piercing one another
Crossing each other	Standing	Winding	Overlapping
Middles crossing	Standing points	Twisted	
Crossings	Incision	Hooked ends	
Tied ends	Ends disappearing	Connected	

OLD DESIGNS, NOW OBSOLETE

89, 90, 150, 164, 165, 321?, 481, 562, 590, 591, 628-630, 631?, 632?, 633, 634, 702, 760-764, 784, 785, 794, 814-817, 846?, 847?, 852, 853, 854.

OLD DESIGNS, RARE

77, 99, 102, 103, 136, 144, 145, 148, 151, 152, 167, 170, 182, 186, 266, 269, 299, 305, 306, 313, 388, 398, 406, 407, 412, 413, 436, 437, 452, 471, 484, 486, 537?, 538?, 586, 619, 621, 670, 678, 679, 682-685, 719, 757-759, 788, 789, 818-824, and Lytton kekule house designs.

OLD DESIGNS

1-16, 21-39, 42-54, 60-72, 74-83, 85-88, 100-108, 110-115, 117-122, 128-138, 141, 144-151, 153, 155, 158-163, 169-174, 176-184, 187, 189, 191-193, 199, 200-206, 208-215, 217, 218, 222-232, 234-236, 240, 241, 244-247, 249, 250, 252, 254, 257-262, 264-270, 272-275, 277, 278, 281, 284, 286-296, 299, 301-310, 312-318, 320, 322, 329-332, 335, 347, 349-368, 370-378, 380-393, 395, 397, 399-410, 412-414, 423, 425, 426, 428, 429, 431, 435, 437-439, 440, 442-450, 452-458, 460-476, 478, 480-498, 501, 503, 504, 506-508, 510, 518-529, 531, 533-535, 540, 544, 545, 547, 551, 552, 562, 568, 570, 571, 576, 579, 586, 588, 593?, 599-603, 616, 619, 625-627, 635-640, 646, 647, 649, 662, 668, 669, 671, 673-676, 678, 679, 681, 682, 688, 696-699, 702-732, 746-767, 775, 786, 788-791, 796-798, 800-807, 811-813, 818-824, 826, 829, 833, 838, 839, 858.

NEW DESIGNS

84, 97, 98, 126, 150 (not usually on basketry, a blanket design), 175, 181, 190, 219, 250, 259, 260, 311, 319, 328, 333, 394, 396, 415, 416, 417, 418, 419, 421, 430, 515, 516, 517, 539, 553, 559, 594, 595, 597, 599, 600, 601, 603, 607-612, 614, 615, 619, 653, 656, 657, 660, 664-667, 675, 690, 700, 701, 792, 793, 844.

THE INFORMANTS

Mr. Teit collected from the numbered informants with whom he worked so long quite complete data regarding themselves and their individual achievements, from which some very interesting deductions may be obtained about the different abilities and general intelligence of the women.

No. 1. Yiôpā'tko (Disappearing Water), belonged to the Spences Bridge Band of the Upper Thompson and was not related to people of any of the other divisions. She was the mother of informant No. 2. She began to make baskets when she had almost reached middle age and still continued to make several every year at the time she was interviewed, when she was about 60 years of age. She had manufactured numerous baskets, most of them of the burden variety.

Among the designs used by Yiôpā'tko are the following:

Sketches: (pls. 78-94) 8, 16 (but not so wide), 40, 46, 66, 68 (narrower), 128, 133, 134, 202, 204, 205, 222, 225, 245, 257, 278, 292, 316, 355, 382, 426, a design closely resembling 440, 441, 468, 478, 488, 496, 497, 529, 582, 700, 701, 841.

Plates: 9, *c*; 11, *a* (middle stripe); 14, *e*; 21, *a* (droppers); 23, *c*; 28, *e*; 31, *d*; 34, *a*; 39, *a*; 39, *b*; 47, *d*; 49, *e*; 55, *h* (droppers); 57, *d*; also A. M. N. H. 16/4644; 16/5901.

Yiôpā'tko does not make any net designs and seldom attempts zigzags or ladder patterns, except certain horizontal zigzags. She

does not make any star, butterfly, eagle, or similar elaborate patterns, but the sketches, Figure 122, Nos. 1-9, are some with which she is familiar.

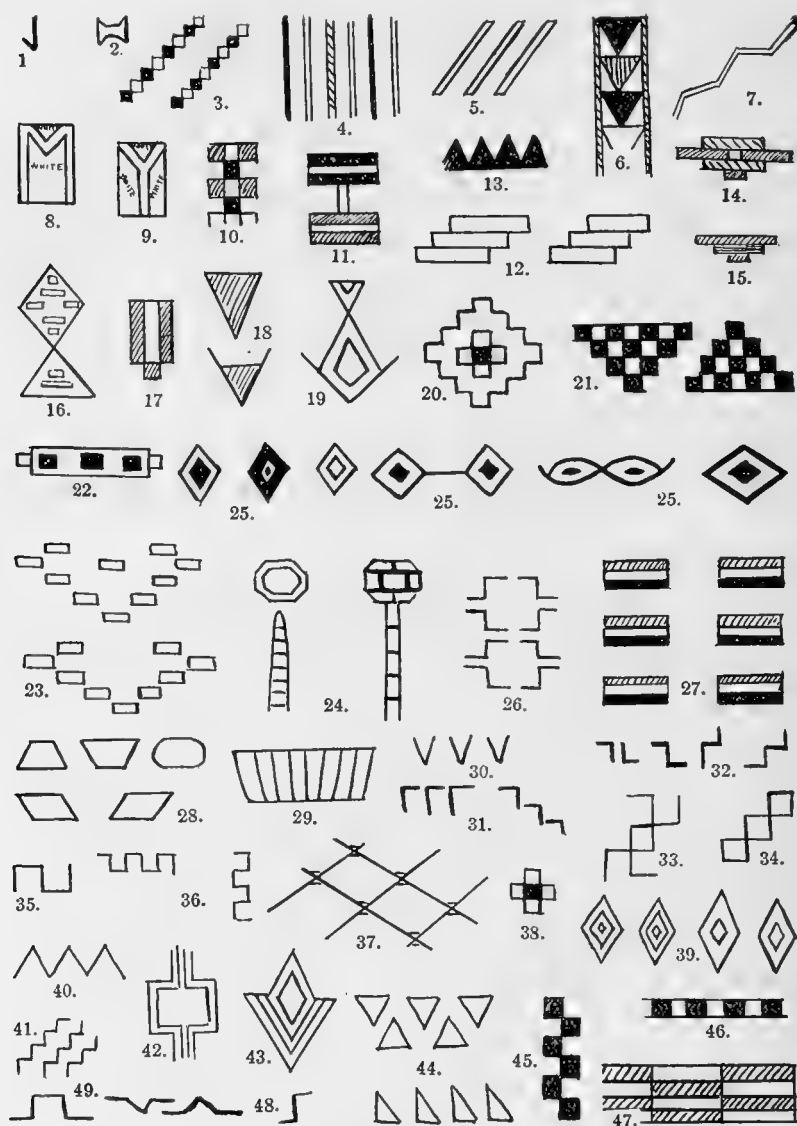


FIG. 122.—Designs made by individual artists

The squares are very small and worked in red and black. The elements are too small to be considered as forming a "ladder" or "step" design; so she called them "beads." (Fig. 122, 3.)

The pattern (fig. 122, 4) in alternating colors she designated as "scratches" or incisions.

She used different colors for the "leaning" design (fig. 122, 5) which she said was considered by some people to be a portion of a zigzag (fig. 122, 7) and called "scratch."

The "arrowhead" pattern (fig. 122, 6) she varied by using different combinations of colors both for the outlines and for the triangles.

Yiôpā'tko was inclined to think that the name "filled mouth" was sometimes given to the two patterns (fig. 122, 8, 9) but she called them "notch" designs and said she had made several varieties.

No. 2. Tuxi'nek (Increased Bow), daughter of Yiôpā'tko, was also from the Spences Bridge Band of the Upper Thompson. Her father's people were Fraser River Shuswap. When interviewed she was a young woman aged about 26. She began making baskets at about 20 and had already made a number, a few burden baskets and other shapes, but mostly bowls and circular forms. She made one or more every year. Her teachers had been her mother and some of the Upper Thompson and Utā'mqt women who lived at North Bend. Tuxi'nek was raised at Spences Bridge. The designs made by her are largely represented by—

Sketches: 4, 31, 40, 60, 80, 128, nearly like 133, 176, 204, 225, 245, 315, 426, nearly like 440, 441, nearly like 479, 480, 547, 568, nearly like 697, and a very few others.

Plates: 25, *b*; 49, *f*; also A. M. N. H. 16/1044; 16/4644.

The "mula" design was the first she made. She makes two varieties of star designs somewhat different from those given here.

No. 3. Xamāl'.ks (— Dress) was a young woman of about 32 years of age of the Spences Bridge Band, but related by blood to the Thompson and Lytton Bands. She was raised among the Thompson and was not related to any of the other informants. She began basket making when a very small girl, consequently had produced a large number, and was still making several every year, on which she expended all of her spare time. The designs she used are represented in part by—

Sketches: 79, 80, 82, 114–116, 119, 128, 132, 171, 217, 218, 232, 328, 340, 341, 355, 361, 399, 400, 402, 412, 440, 463, 465, 501, 519, 520, 547, 627.

Plates: Frontispiece; 8, *d*; 9, *a*; 12, *b*; 14, *e*; 22, *d*; 24, *b*; 24, *c* (all the designs but not the same combination); 25, *a*; 25, *c*; 28, *d*; 31, *a* (only with cross center); 34, *a*; 37, *c* (in vertical bands with and without the cross); 37, *d*; 37, *e*; 56, *d* (separate or in different combinations); 57, *c*; also A. M. N. H. 16/1044; 16/1270; 16/1271; 16/1273; 16/4581; 16/4620; 16/4644.

Xamāl'.ks makes also the following in various colors: Big bead (fig. 122, 10, 11), heaped up (fig. 122, 12).

No. 4. Tekwi'tlixqen (— Head), a daughter of No. 5, was raised around Spences Bridge. Her parents were Spences Bridge and Nicola. She was aged about 36 and began basket making five or more years previous to the time when she was questioned. She picked up the art, as many women do, by watching others of the Upper Thompson tribes. She made two or three baskets every year and had finished a number of burden, oblong, and circular shapes. Her designs, shown in Figure 122, were "arrowhead" (13), "cloud" (14), "cloud embroidery" (15), variety of a copied design, name unknown to her (16), "bead" variety, invented by herself (17), variety of "arrowhead," invented by herself (18).

Plates: The right-hand stripe, 7, *c*, which is called "marks of a young fawn's skin"; the central stripe of 15, *b*; the rim design of 32, *c*; the central stripe of 3, *b*; 28, *g* (called caterpillar); 23, *c*, the checkerwork at the rim; 38, *d*; 49, *f*.

She also made Figure 122, Nos. 19, 20, 21, which she said were all variations of form and arrangement of designs seen by her on other women's baskets. She did not know their proper names.

No. 5. Sinsi'n.tko (Staggering Water) was raised at Potato Gardens, among the Nicola, but she belonged to the Spences Bridge Band. Her parents were Nicola and Lytton. She was nearly 60 years of age, the mother of No. 4, and began basket making only four years before this information was gathered. She acquired sufficient knowledge of the art by watching others but had not worked at it very steadily, as she did not have much time for it. She had not cared about it when she was young. Her baskets were about five in number and were oblong and circular shapes. She had made only a very few designs, not more than six, the principal of which were one or two forms of arrowheads. Her first basket was decorated only with beading.

No. 6. Tsô's.tko (Rattling Water) belonged also to the Spences Bridge Band. Her mother was part Thompson, part Utâ'mqt. No. 2 was her half sister by the same father. She had grown up at Spences Bridge and at the time of the investigation was 45 years old. She had made baskets for a number of years but as she worked only occasionally had not many to her credit. At first she had no special instruction but had gathered what she knew about the art from observing other women. Some years she made one or two and at other times for a period of a year or more she did nothing. All of her baskets were comparatively small and circular. Her designs were:

Sketches: 4, 7, 30, 51, 60, 80, 86, 128, 157, 180, 222, 225, 245, 303, 361, 369, 374, 393, 412, 426, 441, 480, 497, 504, 527, 547, 697, and a very few others.

No. 7. Julia was a member of the Lytton Band of Upper Thompson. Her father was a Lytton, her mother was partly Greek, partly *Stlaḡā'iuḡ*^u. When interviewed, Julia was only 17. She had been brought up at Lytton and had made her first basket when very young, but nevertheless had completed very few. The designs she chose are represented in Sketches 36, 157, 180, 225, 426, 592. She had imbricated a number of letters which were the initials of names she knew, such as S, T, A, H, W, Z, M. The letters H and Z she had used in decorative fashion, placing the former in horizontal rows, the latter in vertical series. W she had taken as her own mark, which she was accustomed to place at the corners of baskets.

The shapes she had made were all small, and were circular, square or fancy. The bottoms of her square ones were all constructed by means of a watch-spring coil which had been thickened at intervals on each round, in order to produce corners. She had observed people who made baskets as long as she could remember and in addition had been given some instruction by her mother and aunt, but she did not care much for the work. She had made some simple beading such as over one and under one, and also over one and under two.

No. 8. *Koi'n.tko* (— Water). This informant was aged 58 and was living at Spences Bridge. She had originally belonged to the Thompson Band, and had grown up among them. At the time she was questioned her eyes were in a very bad condition so that she was unable to see the sketches presented to her for identification. However, she said that she had executed only a few designs in the days when she was young and making baskets and that those she did make were all very common. It had been at least 35 years since she had done any work of this kind. All the shapes she had made were circular and rather small.

No. 9. *Kāpī'nek* (Soft Bow), 37 years old, had lived all her life at Lytton, being of Lytton descent, with a slight admixture of *Utā'mqt* blood. Her mother and various other relatives had taught her the art of basket making and she had practiced it to a great extent. At the time she was interviewed she was still in the habit of making a number every year, sometimes as many as 10 or more, of different sizes. More recently she confined herself practically to the manufacture of circular and fancy shapes, although during her life she had made all varieties. *Kāpī'nek* had made many designs, for she seldom duplicated her patterns. Some of these may be seen in Plate 52, *a*, *e*, *i*, *j*, but she had made many others. She also made a design which she called "caterpillar" or "hairy caterpillar." (Fig. 122, 22.) She seldom repeats patterns on different baskets without some variation.

No. 10.—Wōli'p.tsa (Elevated Bottom of a Robe? Clear Weather Robe?) was one of the most intelligent and best informed women interviewed. She belonged to the Potato Gardens Band of the Nicola and at the time of the investigation was 32 years old. She had spent part of her life at Potato Gardens and part at Lytton, for her mother had come from the latter locality. When a very small girl she had begun to make baskets under the tutelage of interested relatives. As she was in the habit of making at least six baskets every year she had completed a large number, which included nearly all the different shapes, but her later efforts had been concentrated on fancy or modern forms and circular types.

Wōli'p.tsa said that for fine work she exercised much care in the selection of materials. For the finest work she often scraped the sewing splints to make them thinner and more pliable. Two bundles of these were about enough to make a medium-sized basket. She preferred to make circular baskets and trays, although she had tried all the shapes. She thought circular forms were much easier to construct and looked as well as other kinds if not better. On burden baskets she always used elongated watch-spring bottoms, while on all other types she found the plain watch spring the easiest and best. She said she had made a great number of designs and could easily make others if she cared to try, but she liked best the "arrowhead" designs, of which three or four were favorites, also "spot," "line," and "star" designs. Again the reason given was that they were easier and appeared as well as other patterns. She had never attempted any one-field, large designs such as that seen in Plate 33, *b*, which she did not know, although she had seen some like it. She always made what she called open designs, not those connected in several directions. She liked separate figures or those arranged in bands and had made all the designs on the basket pictured in Plate 33, *c*. That on the end was known as a "necklace" pattern; the others were all "arrowheads." She confessed, however, that she was ignorant of the proper names of a number of designs. That on the basket portrayed in Plate 24, *b*, she called a "flying goose" pattern, of which she declared there were many variations, but the variety best known to her was neither double nor executed in two colors, but had the single figures all in one color. She had seen one old form which showed the head and tail of the bird, but had never attempted it. She had made the design on the basket in Plate 39, *c*. She considered the basket shown in the photograph to be of very bad shape. It was started with walls which proved to be too nearly vertical and were later given more flare. She had also made the design on the specimen in Plate 3, *b*, but never those given in Plates 11, *b*; 22, *a*, and 48, *e*. She did not know the names of these last two patterns but had seen the former and had heard it called

"notch" design. A photograph similar to Plate 49, *d*, was also submitted to her. She had never made the design like the one in the center on the basket portrayed, but had seen it and this was the case also with the simple "mula" pattern of checks forming a diamond. She had forgotten its name but called it "clusters."

Other designs made by Wōlī'p.tsa are shown in Plates 8, *d*; 9, *b*; 12, *b*; 25, *a*; 25, *c*; 34, *a*; 37, *a*; 37, *b*; 37, *d*; 37, *e*; 39, *a*; 39, *b*; also A. M. N. H. 16/1269; 16/1273; 16/4620; 16/9151; 16/9629; 16/9631.

No. 11. This informant was named .swí'xa (Hair Streaming Out?). Her parents had belonged to the Styne Creek and Similkameen Bands, Spences Bridge group. At the time she gave her information she was 78 years old. When a young woman she had made a number of baskets, but for many years before the time when she was questioned she had not made any. She had manufactured chiefly burden baskets and circular shapes of various sizes. In her work she had ranged from the smallest to the largest, but the majority of her pieces were medium sized. She could no longer see the designs very well, therefore no information could be obtained from her concerning those represented by the sketches and photographs which Mr. Teit submitted to all of the women. She had made "arrowhead," "snake," "zigzag," "ladder," "scratch," "coil," "large and small bead," "dentalia," and a few other designs as a girl but had not made any "grave-box" or "mouth" patterns.

No. 12. Tcīaxā'tko (— Water) was a member of the Gladwin Band, part of the Lytton division. Her parents were connected with the Thompson, Lytton, and Styne Creek Bands. Tcīaxā'tko spent her girlhood partly with the former two groups and partly at Gladwin. She was a sister of informant No. 13. At the time she was consulted about the baskets she was 50 years of age and had made baskets continuously ever since she was a small girl. Her mother and grandmother had been her teachers. She had made a great number of baskets and was still producing four or five a year, not specializing in any particular kind.

She did not remember having made the same design twice, because she liked to try new effects. She always visualized the complete pattern before she commenced to make it, even to the smallest details, and this mental picture was often formed weeks or even months before she executed her ideas, during the time when she planned for her next basket. Again, however, she might not be able to determine upon her pattern until she was ready to begin the new piece. But she always knew what she would do before she started her work, and having once decided did not change her mind, as some women did after a design was begun, thus building a different pattern on an old

decorative foundation. Tcīaxā'tko said that occasionally she noted on a completed basket a design which was strange to her and made up her mind to copy it. She intended usually to do this exactly, but sometimes found that when she was ready to use it, although she had tried hard to remember all the details, she had forgotten some of them, and therefore had to content herself with a pattern which she realized was not a faithful reproduction, replacing the forgotten details with others of her own invention. These she selected as nearly as possible with an eye to their suitability. She never forgot the general form and arrangement of such designs. At other times she remembered quite well all the details of the pattern but purposely altered them to suit her fancy, to improve the pattern or to adapt it to the shape of the basket she was making. Occasionally she invented designs entirely new to her. Sometimes, to her surprise, she discovered similar designs on baskets made by women from distant parts of the country, but she said that always her design was a little different from theirs. Thus it seems that working with the same elements and having a large but definite number of styles of arrangement which lend to Thompson art some peculiarities all its own produced a unity of thought which limited the possibilities of invention and resulted in several distinct origins for similar artistic ideas.

Tcīaxā'tko often made use of old common designs which she adapted as she thought best, making alterations in the arrangement or even substituting new elements. When copying designs seen on other baskets, she never sketched them, nor did she draw her own inventions the better to see how they would look or whether they would be suited to her purpose. She did not need to draw them, she said, as she could imagine quite well exactly how they would appear. The designs made by her were very numerous. Some are represented in Plates 16, *a*; 22, *c*; 22, *d*; 23, *c*; 25, *b*; 25, *c*; 28, *d*; 31, *b*; 33, *b* (short side); 34, *a*; 37, *c*; 55, *g*; 56, *d*; 57, *c*; also A. M. N. H. 16/1044; 16/4581; 16/4621; 16/5889; and a stripe design running in horizontal rings all over the basket.

A short time before her conversation with Mr. Teit, Tcīaxā'tko had made the "bear track" design. She had heard that there was such an old pattern, but she had never seen it. Her grandmother and other old women she knew had made it, but she did not know its construction. However, she thought about it and concluded that probably the best representation would be that which is given in Figure 122, 23. She could not tell whether there were any points of resemblance between it and the pattern her grandmother knew, nor had she ever seen her own invention or any like it on other baskets. She had never even heard of her pattern being duplicated by others.

According to this informant, the designs on the basket in Plate 31, *b*, is an embroidery pattern, or, more properly, an imitation of beadwork used on women's dresses. So are those shown in Plates 24, *b*; 37, *a*; 43, *c*, *d*. That shown in 37, *a*, is a copy of a design used both in front and behind on the upper parts of the dress. Tciāxā'tko considered this a very old design, for which she had no name except "embroidery design." Zigzag beaded lines inclosed the figures before and behind and passed over or around the shoulders, thus connecting the embroidery so that it formed a continuous pattern. Those on Plates 23, *c*, and 57, *c*, are also necklace designs, but represent actual strings of beads or dentalia. The design of Plate 16, *a*, is called "leg" or "foot." That in Plate 22, *d*, is a fish or deer net design. She said the latter was the common old name among the Upper Thompson and was the term used by her mother.

She called the end design which may be discerned in Plate 33, *b*, "arrowhead." From her mother she had learned that the patterns seen in Plates 28, *b*, *d*, and 55, *g*, were "zigzags" or "deer fences," which with many similar patterns were thought to be pictures of fences in which snares were set for catching deer. The "mula" or "rice root" design she pointed out in Plate 25, *b*, the "pouch" with notched mouth in Plate 9, *c*. There were, she remarked, many paint pouches cut in this fashion. The design on the basket Plate 28, *c*, she called "net," though the elements are "leg" elements, which intersect at intervals. A star design executed all in white would be called by her, snow. Plate 28, *e*, shows a "flower" or "buttercup" pattern which may possibly also be interpreted as "larkspur." Plate 47, *d*, illustrates rain or snow. The design was generally arranged spirally. The "arrow" design which may be seen in Plate 37, *a*, *b*, when made in red and black only, she said was supposed to be an imitation of beads and received its name correspondingly, but if white were substituted for either of these colors the design was known as dentalia. A figure somewhat similar to that depicted in Sketch 681 or Teit, "The Thompson Indians," Figure 313,² was formerly popular and had been made by her mother. It was known as a legging design and illustrated that type of legging the fringes of which were strung with beads. Another design her mother had made and called the "throwing stick and ring of the kolko'laxem game." (Fig. 122, 24.) Her mother and grandmother made a number of designs which are now obsolete, the names of most of which were afterwards forgotten. In response to questions Tciāxā'tko said that she did not use "fly" designs and only a few "arrowhead" patterns. They were easy enough to make, but she had never adopted them, nor had she made the common "dentalia" pattern, as illustrated in Plate 12, *b*.

² Loc. cit.

No. 13, a sister of No. 12, was named Telā'tko (Extending-in-a-Line-Water) and also was a member of the Gladwin Band. She was about 58 years old. She, too, began when a small girl to work in basketry, being taught, as was her sister, by her mother and grandmother. She had made a great number, and almost all the varieties of shapes, and still completed from two to six every year. Repeated use of the same patterns without alteration did not disturb her, although like her sister she sometimes changed them in small details, or their arrangement in the field. The same may be said of her in regard to previous planning of designs for a basket as was said of Tcīaxā'tko, but when she could not determine on a design she sometimes began her basket and built it up to the place where the design was to be started before making up her mind. Only rarely has she altered a pattern in the course of its execution, and then only in minute particulars. The designs she used are to be seen in Sketches 198, 435, 495.

Plates: The Frontispiece; 9, *a*; 12, *b*; 12, *c*; 21, *a*; 21, *b*; 22, *c*; 23, *c*; 24, *c*; 25, *a*; 25, *b*; 28, *b*; 28, *d*; 33, *b*; 33, *d*; 37, *a*; 37, *c*; 40, *b*; 40, *c*; 50, *b*; 55, *b*; 55, *g*; 57, *f*; and A. M. N. H. 16/5889; 16/8740; 16/9236; and designs as in Plate 24, *c*, but not the same combination.

Telā'tko agreed with the information given by her sister. In addition she interpreted the following patterns. For that on the basket in the frontispiece she said there had formerly been no name but that the Utā'mqt later called it "butterfly wing." The designs of Plate 21, *c*, and the baskets in Plates 12, *b*, and 39, *b*, she called "ladder"; those seen in Plate 23, *a*, were "snares."

The arrowhead she discovered in Plate 7, *c*, the "foot" in 12, *c*, the "star" in 14, *d*, "snake" in 18, *b*, the "deer fence" and "snares" or "zigzag" in Sketch 495, Plates 19, *b*, and 28, *b*, *d*, but properly the points of these designs should be flattened. She had used a pattern which she called "snail," since it resembled the horns of that creature, and gave this name to the lower figures on the basket shown in Plate 21, *c*. It resembled "leg" (fig. 122, 48) and "legs" (fig. 122, 49), patterns which she had also made, the latter of which was named "leggings" by some people. Plate 25, *a*, showed a "cross" copied from that used by the Catholics; 35, *a*, circling or snake; that on the end of the basket in Plate 33, *b*, a copy of a pattern known as kekaxā'ist, which was formerly painted on buckskin robes; 33, *d*, small sacks used by women as paint pouches; 33, *c*, all "embroidery" patterns; as well as those in Plates 37, *a*, *b*, and 57, *a*, which were used on women's dresses. The arrow point, she said, was represented in the triangles in 38, *d*, while the diamonds on the same basket she designated as "notches," declaring that such a name was often given this arrangement because of the contracted effect occurring at regular intervals. If the diamonds were separated, the name would not be applicable, but terms like "arrowhead," "leaf," "eye," etc., would

be substituted as more appropriate. The design shown in Plate 40, *b*, was sometimes called a "root digger," again, "white man's design," but Telā'tko thought it really was intended to be a "dentalia" pattern in imitation of those embroidered on the headbands worn by girls. At any rate, she had seen it on such bands a very long time ago. An "eagle" was found in Plate 47, *e*. "Geese" are also represented in Plate 46, *e*. The picture in Plate 57, *f*, was an old common figure popular with the Utā'mqt, which they termed simply "mouths" or "mouths and noses." Telā'tko had copied it from Utā'mqt baskets. She thought it had not been used by the Upper Thompson long ago and probably originated with the Utā'mqt. Telā'tko had made several varieties of flowers on her baskets. Lily-root figures were sometimes made touching one another in all directions, but usually the custom was to separate them, and that is the way they are arranged at present.

Telā'tko's mother had told her the names of many more designs which she had forgotten. She said there were many old designs which had become obsolete. Many were entirely forgotten, since new designs were continually being introduced together with new variations and arrangements of older patterns.

She had used many kinds of diamonds similar to those sketched here (fig. 122, 25), which she called "eyes." She also made "rain" and "deer" patterns and "beads" or "necklaces."

Like her sister, Telā'tko had certain pronounced tastes in regard to her selection of patterns. That shown in Plate 12, *b*, she had made only once because she had found that it was too common. She did not make the "fly" designs and rarely "arrowheads" for the same reason. She believed in trying to produce new effects and variations which she thought out. She did not object to copying patterns from strange baskets and had also revived ancient designs described to her by the old women of the tribe. According to her, some families or even individual women preferred using particular patterns, either from habit or because they liked them, but not because they could not make others. They were simply content to employ the same decorative devices over and over again, with almost no variation, since they served sufficiently well the purpose of ornamenting the basket.

Telā'tko called all the droppers on Lillooet baskets "tsenē'ka." She had heard and believed that these droppers were imitations of the embroidered flaps which the people formerly wore attached to their braids of hair. The flaps were usually long pieces of skin entirely covered with embroidery and often provided with pendants. They were worn on a level with the ears or a little below, one at each side, but if the hair was divided into three parts another tsenē'ka was attached to the braid which hung down the back. Men sometimes stuck feathers in them.³

³ See Teit, "The Shuswap" (fig. 231).

No. 14. Kaukuwā'tko (Sage-Brush-Water) had grown up among the Nicola at Potato Gardens and belonged to that band. She was about 55, and ever since she was a young girl she had made baskets at the rate of two or three every year. On the whole her baskets were of medium size, although she sometimes produced large pieces or some of the small bowl varieties.

Kaukuwā'tko made no zigzag or net patterns because she considered it very difficult to space them properly and to make all the parts of equal size. Even when they were satisfactory, to her mind they did not create any better effect than other patterns, and when badly made they were considerably worse. The patterns she did make are to be seen in Sketches 66, 157, in two or three arrangements, 176 single, 215, 218, 244, 254, 284, 288, 289, 303, 311, 330, 391, 427, 440, 444, 584, 616, 804, and a few others.

Plates: 12, *c*; 23, *d*; 24, *h*; 25, *a*; 25, *b*; 25, *c*; 28, *e*; 34, *a*; 37, *a*; 37, *c*; 38, *d*; 41, *d*; 43, *c*; 49, *b*; also A. M. N. H. 16/1044; 16/4620.

According to Kaukuwā'tko sketch No. 330 is a dentalia design. Those seen in Plate 37, *a-c*, are old designs in bead embroidery. All of these Kaukuwā'tko had made arranged in long lines, as well as the same combinations that appear on the baskets in Plates 38, *d*, and 49, *f*, which were very common. She did not know why the combination of these particular elements was so customary but thought that it was due to habit and because the women thought them attractive. The "mula" design was pointed out in Plate 25, *c*, the "small star" in 47, *d*, a flower in Plate 28, *e*, and the "foot" design in Plate 12, *c*.

No. 15. Mary and her parents belonged to the Stlaxai'ux division. She was 45 years old and had spent her life in the Stlaxai'ux locality. She had been taught basketwork at a very early age by the older women of her family, including grandmother, mother, and mother's sisters, and had specialized in medium sizes of all shapes, but particularly in burden and circular baskets. Of the last she had also made some smaller specimens. She was still completing from one to three every year. Her artistic tastes are represented by Sketches 68 257, 288, 292, 434, 504.

Plates: 7, *c*; 9, *b*; 11, *a*; 12, *a*; 12, *b*; 14, *e*; 16, *a*; 18, *b*; 24, *e*; 24, *g*; 24, *h*; 27, *g*; 33, *c*; 34, *a*; 37, *a*; 37, *b*; 37, *c*; 37, *e*; 38, *c*; 39, *a*; 39, *b*; 43, *d*; 46, *a*; 56, *d*; 56, *e*; 58, *a*; fig. 122, 26; also A. M. N. H. 16/1269; 16/1271; 16/4581; 16/4640; 16/5915; 16/9236; 16/9630.

According to Mary's account many old Stlaxai'ux designs were very similar to or even identical with Lytton patterns. Those of the Upper Lillooet resembled more the designs used by the Lower Lillooet than those in vogue among the Stlaxai'ux and Lytton, but they all were very much alike. The dissimilarity between the art of the Lower Lillooet and the Lytton was least marked. Each

group had been considerably influenced by the work of other groups in a more or less direct way, the Stlaxai'ux by the Lillooet, while the upper bands of the Lillooet gained ideas from the Stlaxai'ux and the Thompson. The Lower Thompson and Lower Lillooet had a number of similar patterns which were not used by the ancient Lytton people farther up the river.

Long ago all the Lillooet used beading very extensively, much more, in fact, than the Thompson, and in greater varieties of patterns. They also were more fond of "fly" patterns, and up to the present time still produce larger numbers of these than do the Thompson. (This statement is borne out by the facts, as an examination of the baskets shows.) The false embroidery made by the Lillooet was never made by the Thompson. When asked about the Shuswap work, of which so little knowledge is extant, as well as regarding the Chilcotin, she could give no information, although apparently well versed in the history of the work in her immediate region.

No. 16. Louise, aged 40; also belonged to the Stlaxai'ux division, but her parents were connected with the Styne Creek and Upper Lillooet. The history of her basket making is practically the same as Mary's. She had made a number of sizes and shapes, but most of her pieces had been oblong or circular. She made medium-sized burden baskets. Although she was not as engrossed in the occupation as formerly, she still continued to practice it occasionally. Her designs were those given in Sketches 24, 60, 68, 75, 433, 440, and 462, arranged perpendicularly.

Plates: 7, c; 8, d; 12, b; 14, a; 15, b; 16, b; 19, a (both designs); 22, a; 22, c; 24, e; 24, h; 28, c; 28, d; 29, b; 32, b; 32, c; 33, c; 34, a; 35, a; 37, e; 39, b; 43, c; 43, d; 46, a; 55, d; 56, e; 57, a; also A. M. N. H. 16/1273; 16/1353; 16/4641; 16/4964; 16/5905; 16/5906; 16/9236; 16/9628; 16/9629.

She also made a design called "leg" or "hooked," which is given in Figure 122, 26.

No. 17. Ex'tko (Scratched or Incised Water) was an old woman about 75, who was born and brought up among the Lytton Band. Her parents also came from the locality of Lytton and Spences Bridge. Like most of the other informants, basketry had been a lifelong occupation with her and she had made nearly all the shapes. At the time she was interviewed she was still making several every year.

Her designs she identified with the sketches whose numbers are given below, but the basket photographs were not shown to her.

Sketches: 8, 13, 14, 22, elongated, 24, 31, 36, 63, 72, 83, 85, 86, 141, 188, 191, 202, 204, 206, 225, 226, 245, 246, 249, 252, 257, 266, 288, 289, 292, 293, 301, 307, 308, 352, 378, 399, 400, 412, 426, 462-464, 484, 489, 520, 700, 766, 791.

She also made practically all of the beading designs shown in Figures 42 and 43.

No. 18. Mrs. John also lived at Lytton. Her parents were Lytton and Upper Utā'mqt. They were also connected with another group, that of Kanaka Bar. When she was a mere child Mrs. John made her first basket, but later she dropped the art almost entirely. At about the age of 30 her interest was again aroused and during the six years previous to her conversation with Mr. Teit she had made a great many and had become a specialist in fancy baskets and also produced some pieces called "fine work"—that is, constructed of very fine coils and sewing splints. She had made a great variety of shapes and in some years had completed as many as 10 or 12 baskets, mostly of small or medium size. She had very seldom used the same design twice. Those she had employed she identified with Sketches 22, elongated, 36, 42, 63, 74, 75, 78, 86, 88, 121, 131, 161, 169, 179, 212, 225, 231, 245, 252, 254, 278, 281, 315, 316, 357, 380, 388, 392, 393, 410, 447, 451, 476, 478, 480, 497, 547, 591, 682, 685, 697, 704, 714, nearly like 716, nearly like 747, nearly like 798, 839, 858.

There are no data for this informant in regard to the designs which appear in the plates.

No. 19. Still a third member of the Lytton Band whose parents had also always dwelt in the vicinity was Mrs. William, who was 45 years old. When approached for information she was concentrating her attention mostly on fancy baskets but she had constructed many shapes and at least from three to five or even more every year since she began to work as a child. The designs with which she ornamented her work may be seen in Sketches 31, 42, 66, 68, but three instead of four squares wide, 72, 74, 75, 82, 141, 157, 222, 225-227, 244, 245, 265, 278, 281, 288, 289, 293, 301, 307, 308, 315, 316, 320, 361, 369, 393, 399, 400, 402, 423, 435, which she called a patch design, 451, 464, 465, 468, 490, 519, 529, 584, 682, 697, 839.

Plates: 7, *a*; 8, *a*; 8, *d*; 11, *a*; 12, *a*; 12, *b*; 14, *e*; 18, *b*; 21, *a* (all designs); 22, *d*; 24, *c*; 24, *h*; 25, *b* (but closer); 25, *c*; 28, *e*; 33, *c*; 34, *a*; 35, *b*; 37, *a*; 37, *b*; 37, *e*; 39, *a*; 39, *b*; 39, *c*; 46, *a*; 47, *d*; 50, *b* (8, *a*; 33, *c*; 46, *a*, in other combinations); also A. M. N. H. 16/1271; 16/1353; 16/9150; 16/9628; 16/9629; 16/9630.

No. 20. The parents of Mrs. Tommy were of the Thompson Band and they, as well as their daughter, had always lived in the neighborhood. From the time she was very young until she was about 40, which was when Mr. Teit saw her, she had been making baskets, although more or less spasmodically. Some years she made none, others from one to several. She had made about all the shapes, but the majority of her pieces had been circular or burden baskets. She noted the following: Sketches 39, 48, 106, 107, 114, 132, 202, 204,

212, a pattern nearly like 215, 217, 225, 245, 315, 316, 378, 380, 403, 413, a design nearly like 415, 423, 424, 445, 472, 503, 504, 511, and a design nearly like 822.

No. 21. Mrs. Billy belonged to the Nicola division and had always lived near Potato Gardens or Petit Creek. Her parents and grandparents were from the same locality or from Lytton, although some one in the family came from the Okanagan country. When Mrs. Billy was a young woman she had learned to coil baskets. Most of the shapes she had made were burden or circular baskets, but from time to time she had produced others. She was still making two or three a year at the age of 50. For the designs she used see Sketches 10, 13, 62, 66, 114, 144, 201, 213, 217, nearly like 220, 225, 227, 245, 246, 307, 315, 316, 319, 349, 351, 360, 368, 369, 374, 378, 382, 390-393, 423, 427, 441, 446, 454, 455, 473, 497, 610, 766, nearly like 773, nearly like 820, nearly like 829.

No. 22. Stí'xtko (Spread-Out-Water) was a Coldwater woman whose relatives were from Boston Bar and neighboring bands. From the time she was very young until 47 Stí'xtko had made a number of baskets and was still producing two or more every year. She had tried various shapes and many sizes but chiefly made burden baskets. She had lived among the Upper Utā'mqt and Nicola.

Her designs she identified from Sketches 9, 11, 12, 13, 22 elongated, 63, 176, 188, 198, 212, 225, 226, 231, 247, 267, 268, 272, 281, 303, 307, 402, 406, 417, 446, 456, 472, 493, 494, 519, 584, 604, 615, a design nearly like 754, 839.

Considerable information was obtained from Stí'xtko, however, about the interpretations of designs which she saw in the photographs. "Arrowhead" designs, according to her, may be seen on the baskets in the frontispiece and Plate 12, *b*, on the end of the basket on Plates 33, *b*; 37, *a*, *b*, *d*, *e*; 39, *a*. An old "blanket" design is that in Plate 16, *a*; another may be seen in Figure 82.

The "Cross" appears in Plate 25, *a*; the real "grave box" or lūka design she declared was that on the side of the basket in Plate 5, *a*; variations in 22, *d*, and 32, *c*. She did not know the interpretation of the pattern in Plate 56, *b*, but thought it might be a variation of the grave box. "Mouth" patterns are shown in Plates 11, *b*; 29, *c*; 57, *a*, *f*.

The design in Plate 25, *c*, she said was occasionally called a "star," "cross," "spotted cross" or "spotted star," "cluster," "fly," or "bead." The pattern is generally called a mula or "Indian rice root" representation. A part of a "net" design was discovered in Plate 31, *a*, while Figure 84 showed it entire.

* The "notch" ("bend," "bent leg") pattern she found in Plate 12, *c*, the "tump line" or "pack strap" in Plate 55, *a*, *c*.

No. 23. The name of this informant was evidently not obtained. She was of Coldwater affiliation; her parents came from there and relatives in the family were Coldwater, Upper Utā'mqt and Thompson. The informant had spent part of her 32 years among the Coldwater and had made baskets since she was very young, a number of shapes, but mostly medium-sized burden baskets, of which she was making one or two nearly every year. The designs with which she ornamented these are given in Sketches 14, 43, 74, 88, 179, 186, 187, 197, 212, 223(?), 225-227, 245, 252, 257, 303, 315, nearly like 330, 365, 435, 445, 479, 520, 547, 584, nearly like 715, 785, 790, 845.

No. 24. Mrs. Louis was raised among the Upper Utā'mqt and belonged to that band. Her parents came from North Bend and Boston Bar bands. At 45 Mrs. Louis was still making four or five baskets every year and said that she had been engaged in the work since childhood. Although she had not pretended to specialize in any particular kind and had tried her hand at all of them, she had made a great many fancy baskets, which she had adorned with the designs seen in Sketches 14, 74, 79, 82, 87, nearly like 103, 108, 111, 198, nearly like 208, 222, 225, 232, 244, 245, 247, 248, 257, 265, 274, 278, 298, 332, 365, 380, 435, 488, 489, 504, 521, 525, 528, 537, 584, 585, nearly like 639, 704, 717, nearly like 746, 747, 748, 798.

No. 25. Mrs. Paul was a member of the Spuzzum Band of the Lower Utā'mqt division. Her parents were from the same locality and Mrs. Paul was raised there. She was at least 67 years old when interviewed and since she had begun making baskets when a mere child and was still making three or four every year, during her life she had completed a great many. In her earlier years her rate of production was much higher but she said she was not able to do as good work as formerly. She had made all of the old shapes and even a few of the new ones, but most of her baskets had been burden baskets. Some of the *stlūk* and burden shapes she had made had been of very large size. Some of the designs which Mrs. Paul had executed are to be seen in Sketches 79-81, 197, 198, 208, 240, 241, 257, 292, 308, 382, 399, 400, 402, 518, 806, and a number of others not in the sketches.

Plates: 8, *d*; 9, *a*; 9, *b*; 12, *b*; 14, *b*; 14, *e*; 18, *a*; 22, *d*; 24, *c* (not in the same combination); 25, *a*; 25, *c* (rarely); 28, *b*; 28, *d*; 34, *a*; 37, *a*; 37, *b*; 37, *d*; 37, *e*; 39, *a*; 40, *b* (rarely); 55, *c*; 57, *a*; also A. M. N. H. 16/1044; 16/1273; 16/4581; 16/4620; 16/4640; 16/5905.

It will be remembered that No. 25, Mrs. Paul, has been mentioned a number of times throughout the book as being particularly

well informed about her craft and likewise a very excellent technician. Much of the information about the practices of the basket maker was obtained from her.

In regard to the structure of burden baskets she said that she regulated the flare and rounding entirely by eye. The uniformity of the coil was controlled partly by eye and partly by touch. If the coil became enlarged at any point the next coil was reduced where it lay over the irregularity so that each round maintained a proper level. In many designs Mrs. Paul counted her stitches. In making a design like that shown in Figure 69 she counted the stitches which composed the blocks but not those in the intervening spaces, and therefore each block conformed to a standard which she had set. She realized that some stitches would be slightly wider than others, and that therefore the actual length of the figures would vary somewhat, but that this variation was scarcely noticeable. This variation in stitches did, however, create another discrepancy which was more troublesome, for the resulting figures were often not perfectly rectangular. Owing to a wider sewing splint being used on one coil or another, or on account of the lean of the stitches the outline might result as in Figure 122, 28. In so conspicuous a point as the number of coils between figures, Mrs. Paul and all the other women were very careful to count, but the vertical alignment was effected by eye. She tried always when first introducing the design so to space the figures about the circumference, on the sides and ends, that they would be approximately equidistant and the corners not too bare. The increasing flare caused the bare corner field to become larger at each round of the coil, especially when the decoration was in vertical bands. If the bareness was not too noticeable she never used "fillers." She felt that if the vertical stripes were properly spaced in the beginning, fillers would not be required. It was the custom to use for the filler a design different from that used for the rest of the basket. Occasionally she would endeavor to adapt the bands to the shape of the field, wholly by eye, when the result would appear as in Figure 122, 29. With small, all-over patterns she often measured in the beginning with a splint and marks as described by No. 29, so as to start them about the circumference as nearly equidistant as possible and she also counted the stitches, both those in the designs and those in the intervening spaces. If the arrangement was scattered and plenty of room was allowed between the figures she proceeded by eye only.

Sometimes when making a design such as a vertical stripe subdivided into sections of a given height it became necessary to accommodate the height of the basket to the design, and this she considered when she first determined the approximate height of the walls. Thus, if two figures, for instance, had been completed and four were the

proposed number, she would measure down to the bottom of the first figure from the coil just finished and then invert her splint in order to see how high the basket must be to include the fourth figure and whether or not this height would be too great for the length and width of the basket when completed with the proper flare. If the height appeared correct, then she would continue her work without more ado, but if she discovered that a proper height would necessitate cutting off part of the top figure she was then obliged to alter her original plans and make the basket a little higher than it should be for what she considered correct proportions.

If she discovered that the top figure would have to come above where the rim really should be and the introduction of four figures would make the basket too deep for the other proportions, she contented herself with three figures. If a few intervening coils would be left between the completion of the top figure and the rim, she might introduce a different small figure to fill this space, or if she was very particular about the height and there was not room for such a design she might introduce a portion of the elemental figure. This, she said, was often done.

Mrs. Paul agreed with the information furnished by No. 29 in regard to designs. In addition, she discussed some others. The chevron design (fig. 122, 30) she called a "broken zigzag;" Figure 122, 31 and 32, were all forms of the "step" design or "bent end design broken." She had made them all, and also a variation of a common design (fig. 122, 33), which was considered by her to look better on a small basket than one with three complete squares (fig. 122, 34) if there was not room for any more, because the first figure appeared complete in itself, while the second seemed cut down to suit the size of the basket. The latter was called "bent and joined." She had recently made a variation of the "mouth" design (fig. 122, 35) in black lines and filled the partially inclosed square spaces with white imbrication. Formerly she had used the same pattern in a vertical serial arrangement. The common "mouth" design was a meander. (Fig. 122, 36.) Those she made she considered fragments. Patterns she called "leaves" she made either in imbrication or beading. She also made variations of the "cross" design.

No. 26. Annie belonged to the Lower Utā'mqt and was a member of the Spuzzum Band. Her parents also lived there. She was 30 years old but had made only a very few baskets, and they were small and of fancy shape. She had made rattles. The ornamentation on her work was effected as often by beading as by imbrication, and this was true even of the rattles. She liked basket making but had very little time for it since she had too much housework and was busy with her children.

The designs she made she recognized in Plate 34, *b*; A. M. N. H. 16/4620; 16/4863. (She also made the beading designs, figs. 42 and 43.)

No. 27. Josephine was about 40 years old and came from Spuzzum, where her people also lived. She did not specialize in any kind of baskets, although she had been working since she was a little girl and still made five or six per year. Her designs may be seen in Sketches 51, 60, a fly design resembling 68, 79, 80, 82, 87, 128, 132, 136, a pattern nearly like 205, 226, 246, 247, 272, 274, 275, 278, 281, a design something like 305, 315, 316, several varieties of 399 and 400, 451, 489, 518, 520, 584, 704, 729.

The frontispiece; A. M. N. H. 16/1044; Figure 122, 37.

She also made a "tied heads" design, "fly" patterns in several varieties in bands of different widths, the "dogwood flower" (fig. 122, 38), and "leaf" patterns (fig. 122, 39), "zigzag" (fig. 122, 40), "bent end" (fig. 122, 41), "grave box" (fig. 122, 42), "butterfly" (fig. 122, 43), "arrowhead" (fig. 122, 44).

No. 28, a member of the Spuzzum Band of the Lower Utā'mqt, was about 25 years old. Her name is not given. Her people had always lived at Spuzzum. Since early childhood she had made all kinds and sizes of baskets and still continued to make a number every year. More recently she had centered her attention on fancy baskets. Her designs are given in Sketches 435, 690; in Plates 12, *b*; 23, *c*; 32, *c*; 33, *b*; 43, *c*, *d*; also A. M. N. H. 16/5913. She also made several varieties of "fly" patterns. She called all check patterns which were generally known as "little spot" or "bead" (fig. 122, 45), "fly," "marked," or "variegated." She said they were also known as "berry" patterns. Figure 122, 46, is a "garter snake."

No. 29. Katie was brought up at Spuzzum. At the time she was interviewed she was about 45 years old. Since she began as a little girl she had made all kinds of basketry, but had specialized to some extent on fancy shapes and fine work. During the past two years she had not been able to do any work owing to an injured hand, but her interest in the art had not waned and she was able to furnish much interesting and valuable information. The designs she made are seen in Plates 7, *a*; 12, *b*; 14, *e*; 22, *c*; 24, *a* (middle design); 25, *b*; 25, *c*; 28, *d*; 33, *c*; 34, *a*; 37, *c*; 37, *e*; 39, *a*; 40, *b*; 43, *d* (made only when she was young); 47, *d*; 55, *h*; 56, *d*; also A. M. N. H. 16/1044; 16/1271; 16/1273; 16/4581; 16/4620; 16/4621; 16/4640; 16/9236; 16/9628; 16/9630.

Katie called chevrons which were separated and arranged in various ways "separated zigzag." She had made some of them. Separate diamond patterns were "spot here and there," of which she had tried several variations. That in Figure 54 she called "little spots"

but identified it with the Lytton or Upper Thompson "mula." She had made it but declared that it was not ancient at Spuzzum. According to tradition it had been borrowed from up the river. The pattern seen in Plate 40, *b*, was not made at Spuzzum until about 1885, when her sister introduced it, having copied it from the printed border of a white man's handkerchief. The design in Figure 65 was said to be very old. It was formerly made at Spuzzum but became obsolete and she had forgotten its name. Together with other Spuzzum people she called the pattern seen in Plate 47, *d*, a "berry" design. Figure 122, 46, was made always in red and black at Spuzzum and was known as "striped snake." If made with white instead of red some people would think it was a dentalia pattern, which might have been the reason, she thought, why it was always red and black. She had made all these designs.

Realistic figures were very rare on Spuzzum basketry long ago and very few were being made when Katie was interviewed. Some people think there were none formerly.

In regard to technique she was well informed. She usually made the height of the basket wall equal to the length of the bottom, and this she frequently measured by spans, the finger length, the distance between joints, and the finger width. If she measured properly, either with her hands or splints, or if she counted her stitches, she could always obtain uniform designs which were well spaced and balanced and no filling was required. She had never found it necessary to use such devices and preferred not to do so.

She had the whole picture of her design clearly in mind before starting the side walls, and she never changed it once it was begun. Such patterns as the "woven" design (pl. 32, *c*) were very difficult so she copied them from sketches until half completed and then used the finished part as a guide, since the other was only a reverse. Occasionally she employed other baskets as models when copying. But if she could not procure the baskets she relied upon her memory or made a sketch. Long ago, before the whites came, women often sketched with charcoal on birch bark the designs they wished to copy, and more rarely they planned out new ones on bark or smooth pieces of wood. Men also drew designs to work by when carving or incising on wood.

Katie and her sister and all careful workers measured their designs with a loose piece of splint when starting them so as to place them properly about the circumference. Equidistant arrangements seemed best to them. They measured around with the splint and marked those points where they were to start the designs by inserting into the coil little pieces of splint about half an inch long. If they found the arrangement would not work out evenly they shifted the measurements and markers until it did. If they trusted only to the eye they

seldom obtained equidistant arrangements and the last design came out too close to the first; also defects became more glaring as the work advanced. Some women did not seem to care about this, but most of them considered it ugly, even some who would not take the trouble to measure carefully but were content with approximate spacing. A few made a rough estimate of the distances by measuring with the fingers and then measured backward from each point where a pattern was inserted to see if the right distances were being maintained. When once all were started, no further attention was paid to this point.

According to this informant, bottoms of flat coils or wooden slats are all of late introduction, and were copied from Lillooet work. They were considered inferior in appearance, strength, and durability by the Thompson but were employed by some women because it required less time to make them. Katie had never used them.

Ring coils were formerly unknown, at least at Spuzzum, but later became common. They were introduced by her sister about 1890 when she was making a very fine basket to order for a white man. She finished the rim with a ring and it was not long until others copied her idea.

No basketry trays or spoons were made there long ago, and the only unusual shapes were cups and rattles.

There was not much mystery attached to dream designs and probably most of them were not really connected with guardian spirits. Katie thought that women were naturally thinking much about the designs which they intended to make, and consequently sometimes dreamed of them. When a woman dreamed a design and used it, other women readily copied it if they liked it without fear and without asking permission. All the women copied one another's designs, more or less, some exactly, others purposely altering the details.

No. 30. Mrs. York, aged 50, had also made baskets ever since she was a very small girl. She and her parents lived at Spuzzum. She was still producing a number of baskets every year and had fashioned all kinds of shapes. She said that she had made almost every design known to the tribe, which included many varieties of "arrowhead," "zigzag," "packstrap," "blanket," "step," "mouth," "grave box," "leaf," "fern," "butterfly," "flower," "berry," "fly," "cross," "stripe" designs, etc., perhaps over a hundred in all.⁴ Occasionally Mrs. York used the same pattern on more than one basket, but she preferred to try new designs and combinations which she might see on baskets made by other women. When she copied patterns

⁴ Since the sketches of Thompson designs include about 800, it would seem that even those women who are best informed on the art possess, after all, but a slight idea of its range. It might be argued that Mrs. York's idea of 100 was perhaps vague, as in the sense of "many."

she frequently varied them from the original. She had invented a number which she had thought out little by little until the whole idea was complete in her mind before she executed it. Sometimes she discovered afterwards that the same or a similar idea had been worked out elsewhere. She was of the opinion that now it was very hard to invent a really new design.

Mrs. York differed from some of the other women in the interpretations of a few designs. Some variants of "little spot" and "bead" she called "berry." Those composed of a row of dots or checks inclosed in parallel lines she said might also be termed "variegated" or "marked," while the real "fly" design is always in bands several stitches or coils in width with the corners of the checks touching one another.

These 30 informants were of the first group interviewed by Mr. Teit and it will be seen that they are quite representative of the tribe in many ways, such as locality, training, aptitude, general information and interest in the subject. Mr. Teit makes the following explanation concerning the lack of data furnished by some of them: "When interviewing I did not have the sketches with me to show to Nos. 29 and 30. I did not have the photographs with me to show to Nos. 17, 18, 20, 21, 22, 23, 24. Nos. 7, 12, 13, 15, 16, 28, and some others could not understand the sketches well or could not see them on account of bad eyesight, therefore I have noted only a few numbers which they recognized. In no case do the sketches and photographs given represent absolutely all the designs made by the informant. Nearly all the women have made many more designs than those they could recognize from the drawings and pictures."

The remaining five informants were interviewed subsequently and not as thoroughly as the original 30.

No. 31. Cema'nxa (Tobacco) was a halfbreed belonging to the Nicola division. Her father was French, her mother Upper Utā'mqt. Cema'nxa was about 52 years old. Occasionally, since she was a young girl, she had made baskets, but there were years when she had produced none. She had never learned to imbricate, therefore some of her baskets were bare, while others were ornamented simply with beading. Some of the latter variety she had completely covered with beading, but the design she most often used consisted of narrow horizontal lines which encircled the basket walls some distance apart.

No. 32. Sēsua (Little Friend?) came from the Nicola band at Potato Gardens but was also related to the Thompson. She was 46 years old. When a young woman she had made only birch-bark baskets and woven articles, such as matting, but when about 40 years old she began to construct coiled ware and liked the work. She never experienced much difficulty with the technique and considered her

first piece fairly good. When she saw Mr. Teit she was able to do very nice work. Only a few women at Potato Gardens and Spences Bridge made baskets when she was young, for the real centers for the industry were down the river from Thompson Siding. The majority of the women of the Thompson Band were engaged in the occupation, however, while most of the people east of them constructed birch-bark utensils and bought their coiled ware. Sēsua had made several baskets each year since she began and identified some of her designs in the following plates and figures:

Plates: 8, *d*; 9, *b*; 14, *e*; 18, *a*; 25, *c*; 28, *b*; 35, *a*; 35, *d*; 37, *c*; 55, *b*; 56, *a*; 58, *a*; also A. M. N. H. 16/1044; 16/1269; and one "flower" design. She had also made a number of diamond variations.

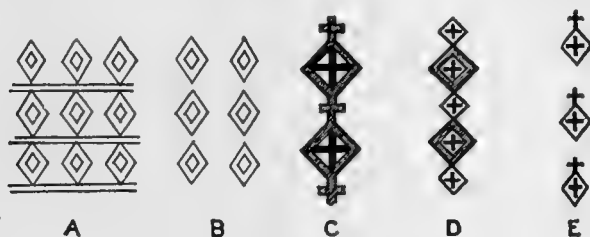


FIG. 122a.—Patterns made by Informant No. 32.

No. 33. Rosie, aged about 38, was a member of the N.ka'ia Band of the Lytton division. She recognized a number of designs she had made in plates: Frontispiece; 11, *a*; 11, *b*; 14, *b*; 14, *e*; 22, *d*; 24, *b*; 24, *f*; 25, *a*; 25, *c*; 25, *d*; 28, *d*; 28, *e*; 28, *h*; 29, *b*; 31, *a*; 35, *a*; 37, *a*; 37, *b*; 37, *c*; 37, *e*; 38, *c*; 38, *d*; 39, *a*; 39, *b*; 39, *c*; 40, *b*; 40, *c*; 43, *c*; 43, *d*; 46, *d*; 49, *f*; 55, *c*; 55, *h*; 58, *a*; also A. M. N. H. 16/1044; 16/1045; 16/1271; 16/4581; 16/4620; 16/4644; 16/5905; 16/8000; 16/8733; 16/8738; 16/9150; 16/9151; 16/9171; 16/9236; 16/9281; 16/9628; and color plates 16/4611; 16/4891; 16/5906; beading as in Figures 42 and 43.

No. 34 was a friend and neighbor of No. 33. They often made baskets together and planned new and striking designs with which to outdo their fellow-workers. They also copied each other's designs. The name of No. 34 was Suzanna. She was 27 years old. From the photographs she recognized designs similar to those she had made in plates: Frontispiece; 11, *a*; 14, *a*; 14, *b*; 14, *e*; 16, *a*; 22, *d*; 23, *c*; 24, *b*; 24, *f*; 25, *a*; 25, *c*; 25, *d*; 27, *g*; 28, *d*; 28, *e*; 28, *h*; 35, *a*; 37, *a*; 37, *c*; 39, *b*; 39, *c*; 40, *b*; 40, *c*; 43, *c*; 43, *d*; 46, *d*; 49, *f*; 55, *c*; 56, *d*; 57, *c*; also A. M. N. H. 16/1044; 16/1045; 16/4581; 16/4620; 16/4621; 16/4644; 16/5905; 16/8000; 16/8733; 16/9150; 16/9151; 16/9236; 16/9281; 16/9628.

Sometimes she used the initials of the names of women and the date, such as the year when the basket was completed.

No. 35 (Rosia Hannah) was about 26 years old. She belonged to the Kanaka Band of the Upper Utā'mqt division and began making baskets when a very little girl. Some years she produced as many as five or six, in others not more than two. She has never used any beading like that the Lillooet made and said none of the Kanaka did. She had made baby carriers. Her designs may be seen in plates: Frontispiece; 5, *a*; 11, *a*; 12, *a*; 14, *a*; 18, *d*; 22, *d*; 23, *c*; 24, *a*; 24, *c*; 25, *a*; 28, *d*; 28, *h*; 35, *a*; 37, *c*; 37, *d*; 38, *d*; 39, *a*; 39, *b*; 43, *c*; 46, *a*; 46, *d*; 46, *e*; 47, *d*; 49, *f*; 56, *d*; 57, *c*; 57, *d*; 58, *a*; also A. M. N. H. 16/1044; 16/1045; 16/4620; 16/5887; 16/8002; 16/8733; 16/9151; 16/9236; 16/9628.

Figures: 13, which is a variation of a star design the original of which had a small cross below as well as above.

RESULTS OBTAINED FROM DATA CONCERNING THE INFORMANTS⁵

The information relating to the informants is, perhaps, not as full as might be desired. It does not seem likely that the data in regard to designs given by each of the informants are complete. Furthermore, the distinctions made between similar designs are not all of the same order. Some women considered designs with a slight differentiation of arrangement or color as entirely distinct, even as new inventions, while others seem to have disregarded minor differences.

It is hardly possible to determine from the data in hand any characteristic difference in distribution of design elements over the area inhabited by the Thompson Indians. It might seem that the designs from Lytton, in the center of the area, are more varied than any others, but it so happens that the basket weavers of this region, who were questioned, were particularly skillful. Taking the region as a whole and all the individuals questioned, certain designs were claimed by each woman to be made only by her, while others she had in common with one or more other individuals. Counting the total amount of designs which were made in common with other individuals, one or more, we find that about one-eighth of all the designs are claimed as made by one person only. There are, however, very great differences. For instance, we find that designs of No. 19 occur one hundred and twenty times in common with other individuals, while she has only two that she claims as belonging to her alone. On the other hand, we find that the designs of No. 21 occur sixty-seven times with other individuals, while she claims nineteen as her own. Similar conditions prevail for Nos. 20 and 22, for whom the respective numbers of designs held in common and alone are fifty-one and eleven, and fifty-five and fourteen. This may indicate a strong individuality for the women who have

⁵ By Helen H. Roberts.

a great many designs as their own and a lack of inventive genius on the part of No. 19, who has only a very few belonging to her. No. 27 also has only a very few designs of her own. For her the occurrences in common with other individuals are seventy-eight, while she mentions only three as her own.

The most common forms which belong to the whole area are triangles, particularly arranged in vertical series, and checkerwork.

In the following I give some data relating to the individual makers.

No. 1 of Spences Bridge made a great many varieties of checkerwork patterns and a surprising number of step, cloud, or mountain designs, both upright and inverted. Sketches 204 and 496 are good examples. She made a number of ladder designs, both framed and unframed, in vertical and oblique sequence, as well as a vertical series of whole triangles. These pointed either up or down. She had a vertical series of whole triangles and another divided into two halves by a white line, both pointing down, and a series of framed diamonds of alternating colors, and the odd figures seen in Sketches 700 and 701, but a Lytton woman also made 700. There are not many designs used by No. 1 which were not made by women at various points down the river.

No. 2, although the daughter of No. 1, did not seem to share with her many designs, and those they both used included very common examples such as the plain, single solid triangle, point up; the vertical series of plain triangles points down, the one-line zigzag composed of horizontal and vertical sections, the step or cloud pattern in its simplest form, two checker patterns and a vertical stripe with diagonal lines running from side to side, called "twisted." Only one has been noted which was made by No. 2 alone (Sketch 568); while she made several in common with Nos. 3 and 6 of the same band, designs that were also known at Nicola, Lytton, and Spuzzum. The patterns of No. 2 covered a much wider range of variation than those made by her mother. She did not seem to prefer any particular type.

The designs of the Spences Bridge women and similar ones encountered in other bands do not necessarily indicate that the women knew one another. For instance, No. 1 from Spences Bridge made a great many designs in common with Nos. 17 and 18 from Lytton. All three produced many baskets and designs. They were probably much interested in the subject and familiar with most of the patterns on baskets in their own locality and on those of other neighborhoods that they happened to see.

No. 3, Spences Bridge, was fond of crosses or "stars" and zigzags of all sorts, but especially horizontal and vertical zigzags composed of oblique sections. A number of designs given in the sketches seem to have been made only by her. These are 115, 116, 119, 171, varieties of zigzags, and 328, 340, 341, 501, and 627, all of which are rather

unusual and diverse. The others include a large number of zigzags, "net," "Indian rice root," and other ordinary checker patterns, two "stars," and the "ladder" designs 144 and 361, both of which are rare.

Informants Nos. 4 and 5, Spences Bridge, were a young woman and her mother. The latter made very few baskets. The daughter's designs corresponding to the sketches were not obtained.

No. 6, Spences Bridge, also made zigzag, checker, and arrowhead patterns which were used by the three preceding women, and at Lytton, Spuzzum, and Nicola. She apparently invented those shown in Sketches 7, 16, 30, and 527; at least they were not made by any of the women who saw the sketches. There are no designs common to all of the Spences Bridge women, but each woman made several which were also applied to the work of other women in the settlement.

Since Nos. 8 and 11, both of Spences Bridge, were practically blind, they could not identify their designs, so no study of their work was possible. All available information about them has been given above.

No. 7 was a Lytton woman whose work was evidently of the simplest order. Her designs were composed of single oblique lines, hooks, or crooks, the Y figure (592) known as part of a grave box, which none of the other women made, the plain single triangle and a bead design of three checks in different colors. She could not see the sketches well, so only a few of her patterns were noted, but none of them are at all pretentious.

No. 9 at Lytton saw only the photographs. From those she recognized as designs she had made, it is clear that she was fond of chevrons and eight-pointed stars. Many that she identified were on trays, and inasmuch as they are there in radial arrangement and might appear quite different when applied to burden baskets, it is possible that she constructed a number of these forms. Several patterns, including white squares outlined in black, were among those recognized by her. She was much more progressive than No. 7, for her patterns were numerous, varied, and complicated, partly due to the fact that she seldom duplicated a design, preferring to try variations.

Nos. 17, 18, and 19 also belonged to Lytton and for the purpose of convenient comparison will be discussed here.

No. 17 found forty-six different designs among the sketches which she had tried. Ten were not claimed by any of the other informants who saw them. They are quite varied. One is realistic, a deer (791); two are zigzag in horizontal arrangement (83, 85); one is a mouth design in vertical series (191); there is a vertical string of beads (484); a vertical series of arrowheads, points down, framed in a stripe (249); some triangles so arranged horizontally on either side of a line that no two are opposite each other, while the points of adjoining rows dovetail (266). She also made the pattern shown in Sketch 206, a notched star, and some figures composed of isolated squares

(352) or triangles, which were called "beads," "flies," or a "star," according to the arrangement. Of the remaining thirty-six, some of which were common, such as Sketches 225, 245, 257, thirteen were arrowhead patterns in a variety of groupings—single, plain, and subdivided vertically by a change of color into two sections; vertical series, points down, in plain color or with a rhythm of three consecutive colors; or plain and light framed on a dark stripe. There was another series, points up, with a heavy black outline as a frame which touched the triangles along the corners at the sides. There were two series of half triangles facing left with points down, both unframed. One of these was in plain color with the base of each triangle barred with white (Sketch 289); the other presented the elements in alternating colors (Sketch 288). Several other of her best creations may be noted by referring to her list. There is no evidence to show that she preferred framed to unframed series. She liked horizontal arrangements composed of two to five layers of long narrow rectangles in alternating colors, which formed continuous lines about the basket. Checker designs numbered only four. The one, two, three color rhythm was noted several times in her work and also one, two, one, or one, two, one, two, one. In common with several Spences Bridge women she made many patterns which Nos. 18 and 19 did not use. Probably this was because part of her family belonged there and she herself grew up there. Then, too, she was an old woman and had no doubt seen many designs in her day. She shared more designs with No. 19 than No. 18 had with either. Several rather unusual ones were made only by these two. (See Sketches 72, 141, 293, 301, 464.) A few also were repeated at Spences Bridge and at Spuzzum. There are only four patterns employed by both 17 and 18, and all of them were found at Coldwater and one at Spences Bridge. Four others used by No. 17 but not by No. 18 were seen at Coldwater, but two had been made also by a Nicola woman and one by a Spuzzum basket maker. Considering that any patterns used by both women were used elsewhere and that these were so few, we may perhaps conclude that Nos. 17 and 18 did not like one another or else one another's work, for it is hardly credible that they were not acquainted. Sketches 225 and 245 are of patterns common to all the Lytton women and found among most of the other bands. Sketch 36 is of a simple little figure found only at Lytton and made by several of the women. On the other hand, No. 17 knew the Thompson Band designs as well as Spences Bridge and Spuzzum patterns, which No. 18 never used except in rare cases when they were also attempted by No. 19, through whom she may have obtained them.

No. 18 was very clever. There are 15 designs claimed only by her. (See Sketches 78, 121, 131, 161, 169, 357, 388, 410, 447, 476, 591, 685, 714, 716, 858.) Perhaps altogether No. 18 used more designs than any

of the other informants. Thirteen appeared also at Coldwater, but of these only three were seen nowhere else. They are all extremely varied in subject and treatment. There are divided vertical series of triangles (Sketches 278, 281); some conventional butterflies, a number of fly patterns, zigzags and foot and duck figures of all degrees of elaboration. No. 18 must have been in touch with the work of many other women, for she used designs seen in all the other bands, although it is impossible to say where these originated. She avoided patterns used by No. 17. The latter was also clever but old. It seems as if No. 19 may have played the part of a go-between in some cases, for she shared a number with both. Nevertheless there are only a few made only by Nos. 18 and 19.

No. 19 was the third versatile Lytton artist. From her study of the sketches she found over 40 designs that she had tried, two very simple ones being claimed only by her (Sketches 320 and 490). Arrowheads are numerous on her list. There are four single triangles, two plain, turning up or down, and two subdivided into two color fields, one vertically through the center, the other horizontally by a line near the base. There is also a realistic arrowpoint. Her ladder designs are like those of No. 18, except the half triangles seen in Sketches 288 and 289. She had one horizontal arrangement of half arrowheads, one of whole figures, an all-over of half arrowheads, and another of whole ones. About a quarter of her patterns were arranged vertically, five horizontally, five obliquely, a few all-over, while the rest were nondescript. She made a number of checker figures. It seems probable that she knew Spences Bridge people or that designs traveled freely between groups in the two places. Sketch 529 shows an especially noteworthy pattern which appears to have been used only by Nos. 1 and 19.

The Gladwin designs so specified in the notes are very few and only three are credited to that locality and nowhere else, yet the two informants, Nos. 12 and 13, were very active basket makers who gave full and valuable information and who said that they did not make many of the patterns popular elsewhere simply for that reason, but rather chose rare designs. Sketches 26 and 91 are of designs claimed only by No. 12, while in Sketch 495 the position of No. 13 as sole maker is not disputed. Both sisters used Sketch 435, which is known also at Lytton, Coldwater, and among the Utā'mqt, and one design credited to No. 12 was used also at Spences Bridge.

Nos. 14 and 21 lived at Potato Gardens, a settlement of the Nicola band. Nineteen designs were recognized only by No. 21, an indication of the extent of her creative genius, or if not that, of her taste for the unusual. They include tipi (773, 820), bow and arrow figures (829), checks (454, 455, 473), grave box (360), and several uncommon star designs, among them three represented by sketches 220, 319, and 610. It may be recalled that the Nicola were fond of

star figures and always interpreted checked patterns as "clusters of stars" rather than "clusters of flies" after the manner of the Lower Thompson. Other designs claimed by her exclusively are 10, 62, 144, 201, 213, 349, 351, 368, and 390. Twenty-two additional designs were made by No. 21 in common with women of other bands, but only three were shared by No. 14, the other informant of her own group. These are Nos. 66, 391, and 427 of the sketches. Here is another situation comparable to that existing at Lytton between Nos. 17 and 18. No. 21 tried patterns also made at Spences Bridge, Lytton, Thompson Siding, and Spuzzum. Many of her figures, however, were the simple triangle and check designs so common everywhere.

No. 14 was much more gifted and more particular in her selections than No. 21, but not as productive. Five were claimed only by her and four of these, Sketches 284, 311, 616, and 804, are not only different from each other but also unique. The fifth, Sketch 444, resembles Sketch 446 made by No. 21 as far as general structure goes and similar ideas have been evolved by other women. The balance of the work of No. 14 is far from ordinary. She evinces a strong preference for contrasting sections of black and white. Out of her 20 designs 8 are of this character (Sketches 66, 215, 244, 254, 284, 427, 440, 804). That she likes alternating rhythms, or one, two rhythms is shown in these sketches as well as in Sketches 288, 330, and 444. No. 14 shared decorative elements with the same bands and in some cases with the same women that No. 21 did. It is difficult to account for the distinct patterns selected by the two; there was not even a difference in age as in the case of Nos. 17 and 18 at Lytton.

Nos. 15 and 16 belonged to the *Stlaxai'ux* division. A number of their designs were recognized from the photographs. No. 16 found about fifty, No. 15 about forty. Eleven were made by both women and included "fly" patterns; slipped or plain diagonals on dark vertical stripes; chevrons with points down on dark vertical stripes; groups of vertical lines cut into alternate light and dark sections (see pl. 34, *a*); zigzags of vertical and horizontal sections, white with black outlines on either edge; large checks all over the basket; chevrons without points, turning up on dark vertical stripes with white edges (see pl. 7, *c*); vertical zigzags of diagonal sections of three black and five white rows, alternating without intervening spaces; and a series composed of alternating black and white triangles (see pl. 39, *c*).

No. 15 displayed a pronounced liking for vertical stripes, although oblique zigzags of horizontal and vertical sections and horizontal zigzags of oblique sections, especially with white centers and black edges, were also in favor with her. Her vertical stripes were adorned

with a variety of designs, various checker arrangements, or combinations of rectangles, zigzags, triangles, chevrons, slipped and plain diagonal lines. Some were groups of vertical lines in alternating colors. This preference may in part be accounted for by the fact that the Stlaxai'ux live on the Fraser River not far from Upper Lillooet territory where droppers, vertical stripes, and fly designs are prevalent.

No. 16. A large proportion of the patterns made by this woman were arranged also on vertical stripes, the elements being checks, chevrons, diagonal lines, triangles, meanders, and rectangles. She used vertical and horizontal compound zigzags, consisting of several parallel lines in alternating colors, which were necessarily of oblique sections, "leg" designs, large all-over checks, groups of vertical stripes of alternating colors, sometimes cut into short lengths by the same device, "grave box," "mouth," "butterfly," "flying bird," and several other patterns. Her versatility and the fact that she was more than a spasmodic worker are evident from this large array of diversified conceptions, but that she was influenced by Lillooet styles is apparent.

Considering the number of designs worked by these two Stlaxai'ux informants, it is rather peculiar that only about a third of them were common to both. It is another proof of the large collection of designs upon which the people could draw through the enormous development which the art had experienced, the inventive genius of certain individuals, and the fact that the tastes of any woman were not necessarily controlled by standards set by small local groups but that she more often sought not to duplicate the products of her neighbors.

From the Thompson Band there was only one informant, No. 20, who is represented by nearly thirty designs. Eleven are credited only to her and comprise groups of short double lines (48), single (106) and triple (107) lines forming "waves of two turns," in other words, zigzags; a few checker or "bead" patterns (403, 413, 424, 503); a vertical stripe with alternating narrow and wide dark diagonal lines on a light ground (Sketch 39); a "tipi" (822), an "eye" (511), and a square crossed by diagonals (415). They are all rather simple. The remainder of her figures are also made at Coldwater, Spences Bridge, Lytton, Nicola, Spuzzum, or somewhere in that neighborhood. There are the widely known ones (see Sketches 225, 245, 315, 316); the two "cloud" figures (Sketches 202 and 204), also seen at Spences Bridge and Lytton; two "big star" designs duplicated at Nicola; checkerwork and zigzags. None of them are unusual except Sketches 202, 204, and 215.

The Coldwater women Nos. 22 and 23 might be regarded as professionals in the same sense as Nos. 17 and 18 at Lytton and 25, 27, and 29 at Spuzzum. No. 22 made at least 32 patterns, 13 of which

no one else claimed and 5 more shared with No. 23. One of these is the simple triangle seen practically everywhere, another the triangle subdivided in half vertically by a change of color. There is no doubt that a number of figures supposed to have been used only by this woman were really very common. Several are plain horizontal lines cut into short lengths by alternations of color (9, 11, 12). Others are Nos. 267, 268, 456, 493, 494, and 584. None are sufficiently unique to deserve comment except those given in Sketches 406, 417, 604, and 615. The sketches show that a rather close connection of some sort existed between this woman and those at Lytton and Spences Bridge. Three somewhat unusual treatments of arrowheads are to be noted in Sketches 231, 247, and 272; the last two evidently used only at this place and among the Utā'mqt.

The designs credited solely to No. 23 are 8 of 28 that she made. They are a little out of the ordinary and include the representations of two animate objects, the "little man" (785) and the "little deer" (790). There is a single outlined "arrowhead" (223), a "rain" design in spots (43), a "fish spear" (186), the Catholic cross (845), a double horizontal meander (187), and a very fine "flying goose" pattern (715). Beside these, there was some checkerwork, a few series of triangles, one of which (Sketch 252) is carried out in a three-part color rhythm; several subdivided single triangles; a key design arranged vertically; the Plains figure (Sketch 330), and other popular patterns in addition to an infrequent diagonal series of gradually increasing squares (Sketch 479). She does not seem to have been controlled in her choice of types of patterns by any habit; on the contrary, the character of the figures is remarkably diversified.

Almost as great an industry was developed among the Lower Thompson as at Lytton, but there is no strongly pronounced difference in art style between the two. No. 24 belonged to the Upper Utā'mqt, the remaining six, Nos. 25 to 30, were from Spuzzum. Forty-two designs made by No. 24 were discovered in the sketches, 14 probably her own. She must have enjoyed working butterflies or butterfly elements, which constituted 10 of the set. Four, and another triangle design closely resembling them, were products of her own invention (Sketches 103, 248, 649, 746, 748). There were 10 arrowhead patterns, Sketches 298 and 332 giving rather rare ones attributed only to her. Other designs attributed only to her were 108, 111, 521, 525, 528, 537, and 585. There were two types of "grave box" designs, one in all-over arrangement, the other forming a horizontal band, and a zigzag (Sketch 87). Checker designs are not plentiful but there are "eye" figures, four kinds of zigzags, one the blanket pattern, another a wave, a third a "pack-strap," and the fourth (Sketch 79) a "half pack-strap," which, how-

ever, is also known as "snake," "mountain," or "caterpillar." Sketches 74, 198, and 208 are odd and striking, and there is an eagle which is given in Sketch 717. Sixteen of her designs are in vertical arrangement, 10 horizontal, and a number are separate or single.

Those shared by No. 24 with other women indicate that she was in touch with the art of many bands. Two were recognized only by herself and Spences Bridge informants, but naturally she used many patterns common at Spuzzum.

It is hardly fair to judge No. 25 by the photographs and sketches which she could identify as having been made by her because she was nearly blind. In her younger days she had been one of the finest weavers. She discovered four designs that apparently had originated with her, among them two (Sketches 240 and 241) unusual kinds of arrowheads, and 806, a thunderbird, which in itself would be enough to convince the student of her ability as an artist and technician. Several "riceroot," "zigzag," "arrowhead," and "snail" or "head" designs (Sketches 197 and 198), together with the notched star made also by No. 24, are all that she found among the sketches. An examination of the plates indicated in her list will give an idea of her other work.

No. 27 was perhaps accountable for four patterns, three of which are butterfly devices, the rarest illustrated in Sketch 275. She also used four other butterfly figures (Sketches 247, 272, 274, and 704). The prevalence of bird and butterfly figures in the south leads one to suspect that this fancy may have originated there. There is no other strongly pronounced type preferred or employed in large numbers by this woman. The usual checker, arrowhead, and zigzag series are present in the usual proportion, but there is no prevalent method of arrangement.

It may be inferred from this study that the women are not closely controlled by habits in their choice of designs and do not display very often pronounced predilections for definite types. It may also be observed that individuals capable of creating the most complicated and ornate patterns will nevertheless make use of the most simple devices as well.

INDEX TO DESIGN NAMES OF SKETCHES

The design names include all of those which Mr. Teit heard used by the tribe.

In the following list are embodied references to the use of terms. U indicates use by the Upper Thompson, L by the Lower Thompson; U*, L* exclusive use by either division. For terms not so marked no information is available. Parentheses indicate that the name is no longer in use.

Of those not contained in the list Mr. Teit ascribes the following to the Upper Thompson: Arrow feather, Arrow nock, Barb, Bear, Branch, Little bullsnake, Ends crooked or zigzag, Fingers, Hail,

Hand, Harpoon, Moccasin-trailer, Rattlesnake's tail, Sharp points, Sheep's head, Shooting star, Snow, Sprout, Star cluster, Weed.

For Lower Thompson: Snail.

For both divisions: Little crow, Dog, Little duck, Little deer, Eagle's tail, Little people, Scattered, Spider, Little tail.

More common among the Upper Thompson: Corners touching, Corners nearly touching, Cross head, Crossing lines, Cross each other, Crossings, Intertwining, Serrated, Sharp point, Standing, Strung, Tied, Tied middles, Wide point.

The information on this subject has been taken from at least one hundred women of the tribe who represented all the divisions, so that it does not seem possible that any important design or name can have escaped the search. The phrases which serve to qualify the names, especially in describing arrangements, are very numerous. (See pp. 400 et seq.)

Angle, 135, 138, 146, 149, 177, 179.

Animal (and snare), 859. UL.

Arrow, 490, 491, 602, 648, 650, 662, 830-834. UL.

Arrowhead, *tatā'zaāist*, 41, 78, 141-143, 222-229, 231-233, 240-247, 249, 252, 254, 257, 264, 269, 272-273 rarely, 277, 280, 284-286, 292, 295, 296, 300-302, 311, 319, 323-327, 331, 332, 334-341, 342, 416, 521, 525, 529, 532, 533, 543(?), 547, 548, 550, 553-555, 559(?), 570, 571, 597, 598, 611-615, 618, 622, 661, 663, 672, 675, 739, 745, 792, 835, 839. UL.

Arrowhead cross, 326, 328.

Arrowhead star, 271, 326-328, 333, 415, 417, 419, 604-605, 607-610, 614.

Arrowheads touching bases, 329, 330.

Arrow notch, 593. U.

Arrowpoint, *tatazahā'ks* (from *tatā'za*, arrow, -ā'ks point), 102, 103, 135, 138-140, 149. UL.

Arrowpoint star, 616.

Backbone, 150.

Bag, 207, 686, 693.

Bark notched, 287.

Bead, *mokiētcēnāist* (from *mokiē'tcēn*, small beads used in embroidery), 1-3, 6-7, 9-11, 14, 16, 26, 27, 28, 43-44, 46, 48, 68, 73-77, 84, 91, 92, 120, 164, 236, 297, 331, 347-349, 354-358, 364, 365, 367, 377-387, 390, 395, 413, 423-425, 451, 454, 471, 477, 481, 488, 493, 495-497, 502, 503, 524, 580, 590, 591. UL.

Bead embroidery, 475, 476.

Beaded edge, 297, 488, 524, 580.

Bear foot (?), 536, 538, 631, 632. U.

Bear skin, 792.

Beaver, *snūnia(h)āist* (diminutive of *snū'ya*, beaver), 559 (rare), 794. UL.

Beaver tail, 549. U*.

Bent back, 153, 154. UL.

Bent end, 184. UL.

Bent knee, 157, 158.

Bent leg, 147, 148, 152-154, 177, 179, 183, 184. UL.

Bent middle, 137, 153, 154.

Berry, *.stsetcoqēmāist .stsetcōqēmā'ist* (from *.stso'qēm* service berry), 668, 669. U.

Big bead, *.stcoktcakoksaā'ist*¹ (from -oksa, a diminutive form of -ō'za, egg or bead shaped), 349, 351, 352, 359, 366, 369-374, 376, 401-405, 407, 409, 410, 412, 414, 415, 419, 423, 426, 427, 437, 438, 441-450, 455, 456, 458, 464-466, 468-471, 478-480, 482-487, 490, 491, 498, 507, 510, 522, 525-528, 531, 534, 535, 552, 568, 569, 586, 670. U.

Big spot, 372, 445-450, 503 (rare).

Big star, 215, 218, 391, 492.

Bird, *spezūzoāist* (from *spezū'zo*, bird), 8, 211, 212, 339, 340, 372, 373, 375, 389, 441, 445-450, 460, 461, 468, 507, 647, 694, 706-732, 767, 775, 797, 804-806. UL.

Bird flying. UL.

Bird's foot, 186, 628-630, 796. UL.

Bird's nest, 642-644.

¹ The name of a rather large bead sold by the fur traders. They were generally blue, but the name seems to indicate red.

- Bird's tail, 719.
 Bird's track, 796.
 Bird's wing, 299, 309, 310, 712, 713, 731, 732, 767.
 Blanket, *.snāzā'ist* (from *.snā'z*, a kind of woven goat hair blanket), 111. L.
 Blue Clematis, 659.
 Bolt, 543, 660.
 Borings of woodworm, 112, 113.
 Bow, 827-829. UL.
 Branch, 144, 145.
 Broken back, 147, 148, 152, 184. UL.
 Broken middle, 137.
 Broken rib, 147(?), 148, 184(?).
 Bullsnake, *ilhwīneka'kest* (from *ilhwī-neq* bullsnake), 24, 66-68, 83, 116-118, 230, 354, 357, 365, 438, 440, 581, 625-627. U.
 Bush, 234-236. UL.
 Buttercup, var. *Ranunculus .nkikazemus'āist* (from *.nkikazemū's* buttercup), 391, 392.
 Butterfly, 135, 136, 137 (rare), 151, 237(?), 247, 248, 261, 263 (rare), 271, 305, 321 (rare), 372, 445-450, 564(?), 565(?), 572 (rare), 646-651 (rare), 690, 693, 704, 705, 746-756, 765, 774, 798-803. L.
 Butterfly wing, *.nkī'kazeni(h)āist*, *.nkī-kazeniāist* (from *.nkī'kazeni*, general name for butterfly), 135(?), 136, 151, 239, 247, 305, 704, 705. L.
 Cactus, 671(?), 852-854. U*.
 Cake, moss cake, 420.
 Caterpillar, *.swopeḷi'letsā'ist*, *wopalī'letza(h)āist*, *.s(h)opalī'litsa(h)āist*, from *.swopalī'letsā*, hairy caterpillar, 21, 45, 64, 65, 79-80, 81(?), 112, 113, 116-121, 128-131, 134, 157-163, 175, 176, 194-198, 297, 313, 314, 317 (rare), 318, 349, 355, 366, 373, 374, 377, 378, 380, 381-387, 403, 407, 408, 413(?), 414, 423, 427-429, 451-453, 454(?), 457, 465, 471, 475-480, 488, 498, 501, 503, 504, 506(?), 524, 568, 580, 696-699. U.
 Circles, *.szel.kā'ist*, *zelzel.kei'.st*, *zelzelekā'ist*, from *.szelk*, reaching around, arching; *zenzenekā'ist*, *zīnekāist*, from *.szeni'k*, in a coil (i. e., as a rope); *.skaiēq.āist*, from *.skaiēq*, round; *.sqaiqaiēq.āi'.st*, 86, 101 (half), 202, 204, 371, 582, 588, 776. UL.
 Circling, *zenza'nemā'ist*, from *zanem*, to move in a circle, 86, 451, 776. UL.
 Clematis, 658, 659.
 Cloud, 5, 9-15, 26, 91-94, 202-205, 208-210, 244, 289, 369, 370-372, 377-387, 390, 412, 416, 441-454, 475, 476, 495, 502, 503, 577-579, 695, 700, 701. U*.
 Club, 848.
 Cluster of flies, 377, 378, 380-387, 399-402, 454, 502, 510, 534, 552.
 Cluster of stars, 399, 400, 402.
 Coil, 4, 22, 23. UL.
 Comb, *stexmīnāist* (from *stexmī'n*, comb), 322, 350, 368, 631, 632, 808, 811-813, 841. U.
 Cone, 760-764. U*.
 Contorting, 104.
 Contracted middle, 114, 115, 321, 416.
 Contracting, 521, 522, 525, 528(?).
 Corral, 776. U*.
 Crook, *.skolkolūtā'ist*, *.skolkoliletzā'ist*, *.skolkolotzāist*, *.skelkelotzā'ist*, from *.skolō'tz* or *skelō'tz*, crooked; *.sko.ō'tz*, crooked, 152, 159-162; double crook, 177, 179.
 Crooked. Pl. 57, a. UL.
 Cross, Christian cross, *lekwa(h)ā'ist*, *lekwanā'ist* (from *la croix*), 845; *.sketzementwāuxāist*, 152, 180, 182, 216(?), 326, 328, 492, 528, 548, 771-773, 845. UL.
 Crossed lines, crossings, *.snkaki'tsā'ist*, *.snkēkītsāist* (from *.skā'a*, placed down on; *.skīts*, crosswise); *kets-ketsa'tsāist* (a diminutive form). UL.
 Crow, *.sā.ē'āst*, *.sāa(h)ā'ist* (from *.sā'a*, crow), 797. UL.
 Crow's foot, 628-630. U*.
 Deer, little deer design, *sme'metsē-tsāist*, *smemitsē'tsest* (diminutive of *smī'its*, flesh, a common name for deer), 790, 791. UL.
 Deer fence, 86, 95, 559, 566. U*.
 Deer foot, 674, 738. U*.
 Deer hoof, 673. U*.
 Deer-hoof rattle, 842.
 Deer net, *.spenpinā'ist* (from *.spenpī'n*, large net for making deer corrals), 362, 519, 520.
 Deer track, 673, 674.
 Deer's head, 734-737. U*.

- Dentalia, *.stlākā'ist* (from *.stlāk*, *slāk*, a large variety of dentalium shell), 8-15, 21, 24, 37, 40, 46, 55-69, 73-75, 77, 164, 165, 298, 374, 427-429, 433, 434, 438, 455, 463-466, 471, 481, 485, 497-499, 503, 504, 568, 570, 571, 576, 579, 590, 591, 708. UL.
- Dentalia pendants, 77.
- Digger, *.kalaxai'.st* (from *kā'lax*, root digger), 152, 180, 181.
- Door, 430. UL**.
- Double figures, 159-162, 177, 179.
- Dragon fly, 8, 388, 389. U*
- Dream design, 339, 692, 771-773, 859.
- Dress design, 98, 99, 101, 507, 671.
- Drill, 835. U.
- Duck, 179, 696-699(?). UL.
- Duck's head, 197, 506. U.
- Eagle, *halāuā'ist* (from *halā'ū*, golden eagle), 694, 706-713, 716-723, 775, 777, 804-806. UL.
- Eagle's nest, 642. U*.
- Ear-ring, 483, 523.
- Earth lodge, *tcilx,ā'ist* (from *tcil'tx*, house, lodge), 771-773, 821 (Lytton designs). U.
- Edge, 207, 297, 488, 524, 580.
- Embroidery, 5, 9-15, 55-69, 91, 92, 97, 98, 101, 201-205, 209, 210, 303, 350, 354, 358, 366-368, 371, 372, 377-387, 412-414, 434, 442-448, 454, 475, 476, 498, 499, 537, 570, 571, 579, 671. U.
- Ends, *rātc,ālcainā'ist* (?) (tied tops), 152, 169, 183, 523, 674.
- Entwining, *ilūpilupatwā'ux* (from *.stlū'p*, twisted), 567.
- Eye, 431, 511, 512, 521, 522, 525, 527, 528, 559?, 587 (rare). UL.
- False legging, 53, 54.
- Fanciful figure, 701.
- Fawn, *.ntsūm.lāā'ist* (from *.ntsū'mla*, fawn), 790.
- Feathers, 490, 491, 849-851. U.
- Fence, 518, 559, 566.
- Fern, *.szānemā'ist*, *szanemāist*, *.tszā-nemā'ist* (from *.szā'nam*, fern, brake), 244, 264-267, 339; a kind of fern, 690. L*.
- Fir-branch, 144, 145.
- Fish, 740. UL.
- Fish backbone, 150.
- Fishhook, 152, 169, 181, 183, 185. U.
- Fishline reel, 214.
- Fish net, *.nze'zkotenā'ist* (from *.nzē'-zkotēn*, large net set for fish); *stūktcēnā'ist* ² *stuktuktēnāist* (from *.stū'ktcēn*, bag net, from *.stū'k*, closed, *-tcēn*, mouth), 362, 519, 520. L.
- Fish spear, 186, 740. U.
- Flat points, 86.
- Flower, *spā'kemāist*, *spapekemāist* (from *.spākem*, general term for flower), 220, 221, 391, 392, 512, 539-543, 546, 606-608, 614, 656-661. UL.
- Fly, *xamaza(h)āist* (from *xamā'za*, common fly); *xaneksāist*, *zaaneksāist*, *hahaneksāist*, (from *xanāqs*, a variety of fly), 6, 7, 16, 68, 211, 212 (rare), 347, 358, 365, 375, 377, 378, 380-389, 391, 393, 399-402, 412, 413, 425, 426, 438, 440, 454, 460-462, 468, 475-477, 499 (checked part), 502, 510, 534, 552. L.
- Foot (Little foot, *skwaxl'test*, from *.skwāxt*, foot or leg):
 Animals, 536, 538, 631, 632, 674.
 Birds, 628-630, 820.
 Human, 156-163, 169, 170, 172-174, 182, 183, 680, 741-744, 786-789.
- Fort, *kaiā'xenā'ist* (from *kaiā'xen*, fort, stockade), 96. U*.
- Frame, 49, 50.
- Fringe, 26, 503, 681.
- Garter snake, *.s,otsāist*, *.stsōtsāōtsa-ā'ist*, *.s,ots,ōtsēāist*, *ōzōtsa(h)āist* (from *.s,ōtsa,āitsa*, garter snake?), 72, 116-119. U.
- Girl's frame, 50, 687.
- Girl's lodge, 818-821.
- Gnawed all around, *.shahēllā'ist* (from *.shilt*, gnawed, serrated), 206.
- Gnawed edges all around, 412.
- Goose (flying), 449, 450, 452, 453, 714, 715. UL.
- Grasshopper, 85 (rare), 88 (rare), 101 (rare), 105-108, 112, 113, 128-130, 146-148, 156, 164 and 165 (rare), 169, 170, 171, 173, 174, 183, 184, 588. U*.
- Grasshopper leg, 105. U*.
- Grave-box, *lūka(h)āist*, *lukluka(h)āist* (from *lūka*, grave box, *Utā'mqt*), 192, 360, 519, 520, 582-586, 592, 690 (real or proper). UL.
- Grave mound, 771-773.
- Grizzly-bear teeth, 263, 572. U*.
- Grouse-foot, 796. L.

² These nets close at the mouth when the fish is caught.

- Grouse-tracks, 796. L.
 Hair ornament. (See *Tsené'ka*.)
 Hair ribbon, 6, 7, 10, 16, 45, 64, 65, 298, 304, 356, 357, 363, 364, 455.
 Hairy caterpillar, *swopeli'letsaä'ist*, *wopali'letsa(h)äist*, *s(h)opali'litsa(h)-äist* (from *swopali'letsa*, hairy caterpillar), 21, 349, 366, 374, 377, 378, 380-387, 413, 414, 423, 427-429, 454, 465, 473-480, 498, 503, 504, 568. U*.
 Half arrowhead, 42, 71, 277, 286, 288, 289, 293, 298, 303, 304, 307, 308, 335, 336. UL.
 Half circles, *zinik*, *zilik*, 86, 101, 202-204, 495. U.
 Half design, 101, 205, 210, 379.
 Half grave-box, 582.
 Half horizontal of zigzag, 588.
 Half moon, 621, 766.
 Half mula, 378, 380-387.
 Half rainbow, 153.
 Half or part of spotted star, 378, 380-386.
 Hammer, 808-811. UL.
 Hand, 633, 634. U*.
 Hand pointing, 505. U.
 Hand rattle, 843. U*.
 Hat, 376, 454 (rare), 456 (Nicola*).
 Head, 152, 180, 181, 197, 198, 506, 781. UL.
 Snake's head, 67, 230, 625-627 (rare).
 Head band, 97, 354.
 Heaped up, 377, 378, 380-387. UL.
 Heart, *swākukäist* (from *swā'kuk*, heart), 401, 510, 534, 552, 688. UL.
 Hoof, 673, 674.
 Hook, 152, 169, 177, 179, 181(?), 183, 185, 680.
 Hooked end, *skauwehaks'ä'ist*, 152, 169, 183.
 House, 100, 641, 682, 703, 771-773, 825, 826, and Lytton designs (pp. 332 et seq.).
 Insect, 8, 211, 212, 372, 373, 375, 445-449, 460, 461, 468.
 Joined, 17-20.
 Joined square, 359, 484, 486.
 ?Kakanétz, 776.
 Ladder, *xenūxä'ist*, *xanuxä'ist* (from *xanū'x*, ladder), 33, 63, 207, 257, 277-281, 284, 285, 287-296, 303, 307, 312-318, 321 (var.), 329-331, 361, 379, 406-409, 411, 433, 434, 443 (var.), 463-467, 471, 478, 480, 576, 683-685. UL.
 Lake, 508. U*.
 Leaf, *patci'kiä'ist*, *peicpetci'kiä'ist* (from *patci'ki*, leaf), 219, 243, 262, 264-267, 395, 508, 516, 517, 540-543, 546-548, 618, 665-667, 855. L.
 Leaning, *skwāuä'ist* (from *skwā'ū*, not perpendicular), 29-31, 183. UL.
 Lean-to lodge, 682, 826. U.
 Leg, 153, 154, 156-165, 170, 172-174, 177, 179, 182, 183, 678-680, 786-789. U.
 Legging, 47-54, 678, 679. UL.
 Little legging, *sēskskaius'äist* (from *ske'ius*, leggings, trousers).
 Legging fringe, 26, 503, 681. U.
 Lightning (rare), 109, 112, 113, 130, 701. U*.
 Lily-root, *tcāwekāist*, *tcawekupaä'ist* (*tcā'wek*, root of *Lilium columbianum*; *tcawekū'pa*, stem, from *ū'pa*, stem, tail), 702, 814-817. U*.
 Lines extending out, 25, 29, 61.
 Little ladder, 31 (rare), 33.
 Little notch. (See Notch.)
 Little people, *stentsen'äist* (a diminutive form), 784, 785.
 Little spot. (See Spot.) *stēk.ik'kest*, *tekteka'käst* ³ *tekteke'käst*. U.
 Lizard, 635-640. U.
 Lodge, 100, 641, 682, 771-773, 818-821, 824, 826; Lytton designs, fig. 98. U.
 Luka(?), 686(?). (See Grave-box.)
 Maple leaf, 665-667.
 Mat lodge, 824.
 Meandering, 82.
 Mesh, 508, 511, 689.
 Middle contracted, 114, 115, 321, 416.
 Moccasin, 641, 695. U*.
 Moccasin trailer, 673, 674. U*.
 Moon, *māxaten'äist* (from *mā'xaten*, moon), 588, 589, 621, 622, 766, 858. UL.
 Morning star, 216, 217, 492.
 Moss cake, 420. U*.
 Mountain, 79-81, 86 (rare), 89-91, 133, 134, 200-204, 209, 318, 377, 378, 380-387, 454, 495, 502, 593, 597. U.
 Mouth, *teutcenä'ist*, *splütcenä'ist* (from *tcū'tcen*, mouth (Ut.); *splütcen*, mouth), 187-196, 360, 776. L.
 Mula (*mūla(h)ä'ist* (root of Indian rice; *Fritillaria lanceolata*) (Indian rice), 377, 378, 380-387, 399-402, 454, 510, 534, 552, 592. (See Root; Lily root.) UL.

³ -f'kest, -akä'ist are the diminutive forms of -äist, design, changed phonetically by the preceding syllable of the word to which the suffix is joined.

- Mushroom, 234-236. UL.
- Necklace, 5, 6, 7, 9-16, 21, 45, 46, 68, 69, 72-78, 82, 84, 85, 88, 91, 92, 97, 98, 100-103, 120, 133, 134, 137, 164, 165, 199-204, 207, 209, 354, 356-358, 359, 365, 367, 372, 439, 442-444, 448, 450, 451, 471, 481, 482, 484-487, 489, 495-497, 499, 507, 534-537, 558, 559, 562, 563, 570, 571, 586, 590, 591, 595, 648, 650, 670, 844. UL.
- Nest, eagle's, 642; robin's, 643, 644. U.
- Net, 97, 98, 362, 435 (rare), 518-521, 525, 528, 537. 561, 563, 689. U*.
- Nose-rod, 8.
- Notch, *.stsentsenā'ist* (from *.stsi'n*, notch), 163, 193-196, 369, 371, 441, 449, 450-453, 648, 674, 675, 776. U.
- Little notch, *stsentsenā'näst*. U.
- Notched bark, 287.
- Notched end, 674.
- Notched feather, 833.
- Notched ladder, 277, 321, 331, 443. UL.
- Notched star, 206-208, 219, 418, 616.
- Opalile'sts* (eagle), 775.
- Open middles, 82.
- Ornament(?), 686.
- Ornamented arrowhead, 745.
- Ornamented star, 394.
- Otter, 793. UL.
- Owl's face, *.skelūlaūs'a'ist* (from *.skalū'la* owl), 391, 392. U*.
- Pack strap (tump line), *.stsu'penā'ist*, *.tsuptsupenā'ist* (from *.stsu'pen*, pack strap), 79-82, 114, 115, 518, 557 (part), 560 (part), 563 (rare), 565, 675, 689, 776. L.
- Paint pouch, 837, 846, 847. U.
- Parflèche, 114, 115, 258-260, 270, 320, 322-325, 416, 556, 597-601, 603. U*.
- Part, *.skatū'x*, *.sketketū'x*, 499, 508, 537, 675.
- Part of earth lodge, Lytton designs.
- Part of grave-box, 85 (rare), 88 (rare), 101 (rare), 586, 588 (rare), 592.
- Part of mula, 377, 378, 380, 381, 382-387, 454.
- Part of net, 521, 525, 528.
- Part of spotted star, 377, 378, 380, 381-387, 454.
- Part of step-design, 423.
- Part of tsupenaist, 557, 564, 565.
- Part of zigzag, 146.
- Patch *.sluzalauza(h)äist .sloxalā'uräst* (from *.slā'uz'u*, patched), 435, 436. UL.
- Pendant, 77, 78, 91, 92, 558, 670.
- People, *.seitkenemuxā'ist* (from *.se'i .tkenemux'u*, people), 768-770, 784, 785. UL.
- Pine cone. (See Cone.)
- Pipe, *.ntcekō'etstenā'ist* (from *.ntcekōe-tsten*, pipe), 390, 741-744, 840.
- Point (arrow), 102, 103, 138, 139, 140, 149.
- Points (standing), *.skem.tlā'ksāist*, *.kekōm.tlā'ks'a'ist* (from *.skemī'tl*, to diminish to a vanishing point), 499. L.
- Pointing hand, 505.
- Pool, 665-667.
- Pound for game, 776.
- Pouch. (See Paint pouch.)
- Rain, *.tākelā'ist* (from *.stā'k.l*, rain), 27, 28, 35, 43, 44, 73, 75 (rare), 367 (rare). U(L).
- Rainbow, 29-33, 82, 85, 88, 91, 92, 100, 101, 153 and 154 (half, rare), 700, 776, 844. U.
- Ram's horns, 645, 795.
- Rattle, 623, 624, 842, 843. U*.
- Rattlesnake, *.tsātenā'ist* (from *.stsi'n*, rattlesnake), 14, 16, 24, 72, 354, 358, 410, 526, 531, 581, 623, 624. U.
- Reel, 214.
- Rib, 147, 148.
- Ribbon. (See Hair ribbon.)
- Rice-root. (See Root.)
- Robin's nest, 643. U.
- Root (rice-root), *.mūla(h)ā'ist* (Indian rice), 378, 380-387, 399-402, 510, 552, 702, 796-799. (See Mula; Lily root.)
- Root-digger, *.kalaxai'.st* (from *kā'lax*, root-digger), 152, 180, 181.
- Scratch, *.sts.ōtsōā'ist*, *.sts.ōts.ōhe'i.st*, *.sts.ō.o'i.ist*⁴ (from *.sts.ō'E*, scratch), 25, 29, 61. UL.
- Shaman, wearing mask, 733.
- Sheep horns, 795.
- Shield, 622.
- Single (in one piece, separate), *.npīā'ist*, *.npīpīā'ist* (from *.npa'ia*, in one piece).
- Skin (stretched), 792. U*.
- Skeskenūs*, 194-196.

⁴ A diminutive of *-äist*, affected phonetically by the preceding syllable.

- Snail (also horned caterpillar), *.sket-kallani(h)ä'ist*, 197, 198.
- Snake, *.smeixäist* (from *.sme'ix*, snake), 4, 15-17, 19, 22-24, 30, 33, 38, 45, 62-64, 66-72, 79-83, 86, 104, 109-111, 114-125, 128-131, 153, 154, 187, 188, 230, 302, 354, 357, 358, 363, 365, 366, 410, 413, 414, 438-440, 498, 521, 525, 526, 528-531, 537, 581, 625-627, 807. UL.
- Little snake, *smême.xē'xest*, using the diminutive for "snake" and "design"; *smemāxā'ist*, using the diminutive for snake.
- Snake's head, 67 (rare), 230, 625-627 (rare). U*.
- Snake-skin, 7, 24, 69-71, 302, 357, 366, 413, 414, 440, 498, 529. U.
- Snake's tail (rattlesnake), *tsätēnūpa-äist* (-*ū'pa* tail, see rattlesnake), 623, 624. U*.
- Snake-track, *kakozā'ix'äist* (from *ka-kozá'ix*, to go, to crawl), 71, 79-81, 86, 104, 109-111, 114, 115, 128-131, 187, 188. UL.
- Snare, 508, 511, 521, 525, 528, 566, 582, 588, 589. U*.
- Snowshoe, 844. UL.
- Spear, 186, 740.
- Spear-head, 508, 656, 661, 662, 700, 701, 838(?). UL.
- Spot, *.stele'kä'ist*, *.stalikäist*, *.stele'kä'ist*, *.stele'kä'ist*, *.stele'kä'ist*, *.stele'kä'ist*, a diminutive form of *stelik*; *tekalakäist* ("here and there," "now and then"); *sliklikä'ist*, (from *.slik*, spot), 6, 7, 43-46, 359, 364, 372, 377, 378, 380-387, 445-450, 454, 458, 469, 470, 484, 486, 503, 568. U.
- Little spot design in a belt, encircling the basket, *piä'iesk tek teklki'kest tek zel.pä'ist*.⁵
- Spotted star, 377, 378, 380, 381, 382-387, 454.
- Square joined, 484.
- Standing points, 499.
- Star, *.nkokūcēnā'ist* (from *.nkokū'cēn*, star), 206-208, 211-221, 271, 311, 319, 326-328, 333, 347, 349, 375, 377, 378, 380-388, 392-400, 402, 415, 418, 419, 424, 425, 454, 459-462, 465, 478, 480, 492-494, 498, 511-515, 540-546, 557, 559, 560, 604-616, 620, 695, 792, 845. UL.
- Step, *.nkokouwetēmēnā'ist* (from *kowē'tamen*, stirrup, step, or *kowē'tem*, to put down the foot), 200-202, 204, 206, 366, 379, 413, 414, 442-444. U.
- Stepped half circle, 201, 203.
- Stepped star, 207, 208, 418.
- Stlak,⁶ 8, 21, 24, 37, 40, 42, 73, 74, 298, 304, 437, 455, 499, 503, 504, 568, 570, 571, 579.
- Stlupaist (twisted) (from *stlūp*, twisted), 39, 40, 355.
- Storm clouds, 700, 701.
- Strap. (See Pack-strap.)
- String of beads, 5-7, 9-16, 68, 356.
- Stripe (see also Scratch and Incision), *.stātaā'ist* (from *.stā'*, stripe), *.stsel-tsēlāist*, *.stseltsēl'lest* (from *.stsel*, *.stsi'l*, stripe), *.sti'lāist*, *.stlililāist* (from *.stlil*, stretching out in a long line), 25, 29, 30, 37, 61. UL.
- Striped bead, 437.
- Striped snake (see also Garter snake), 4, 22, 23, 30, 33, 38, 62, 118, 119, 153, 154. U.
- Sun, 220, 221, 606. U.
- Swallow, 299, 309, 310, 339, 340, 647, 724-732, 767. U.
- Swallow tail, 676. U*.
- Swallow wing, 299, 309, 310, 731, 732. U.
- Sweat-house, 641, 703, 825. U.
- Tail:
- Beaver, 549. U*.
- Bird, 676, 719-722, 778-780.
- Snake, 623, 624, 702, 814-817.
- Tcawek. (See Lily root.)
- Tcētcēlāist, 61.
- Thunder, 543, 660, 694.
- Thunder arrowhead, 548.
- Thunderbolt, 548, 700, 701.
- Tied ends, 523. UL.
- Timbers, Lytton designs.
- Tipi, 771-773, 818-824.
- Tooth, 263-269, 273 (rare), 289, 353, 572. UL.
- Tops of mountains, 79, 80, 593.
- Tracks:
- Animals, 536, 673, 674.
- Birds, 796.
- Snakes *kakozā'ixāist* (from *kako-zāix*, to go, to crawl), 71, 79, 80, 86, 104, 109-111, 114, 115, 128-132, 187, 188.

⁵ tek, with.⁶ For others see Dentalium.

- Trail, 104, 114, 115. U*(L).
Trailer (moccasin), 673, 674.
Tree, 144, 145, 234-236, 757-759, 856. UL.
Tree ladder, 294, 295, 318, 683-685. U.
Tsené'ka,⁷ *tsenēka(h)äist*, *tsentseneka-däist* (from *.stsené'ka*, ornamented, embroidered), 350, 367, 368, 420, 432, 499, 500, 573-575, 596, 674, 675, 677, 686, 688, 693. U.
Tseza'ksten (girl's frame), 50, 687. U.
Twisted, *.stlupä'ist* (from *.stlup*, twisted), 39, 41, 355, 356. UL.
Underground house with cross at head of ladder, 771-773. (Fig. 116.)
War-club, 848. UL.
Wave, 106-110, 146. U(L).
White clematis, 658.
White man's design, 327.
Window, 421. UL**.
- Wing, *.šexekä'xen'ä'ist* (from *.škä'xan*, wing), 135. UL.
Bird, 299, 309, 310.
Eagle's, 712, 713. UL.
Swallow, 731, 732, 767.
Butterfly, 136, 151, 247, 271-275, 305, 564, 565, 704, 705.
Woodworm, *.šezetčä'ist* (from *.šē'zetč*, woodworm), 45, 63-65, 67, 121, 230, 348, 363, 364, 457, 501, 524, 625-627. U.
Woodworm borings, 112, 113. U.
Woven bag design, 207, 686, 693. U*.
Xanaza'in, 36, 37, 39-42, 298, 303, 304, 361, 433, 434, 570, 571. U*.
Xane'm, 690.
Yellow pine cone, 760-764.
Zigzag, 78-80, 82, 86, 104, 106-111, 114, 115, 133, 134, 146 (part), 205, 495, 566, 567, 588 (part). UL.
Zigzag double, 558, 563.
Zigzag half circles, 201-204.
Zigzag steps, 200.

INDIAN NAMES FOR DESIGNS NOT IDENTIFIED WITH SKETCHES

- | | |
|---|--|
| Arrowhead pack strap----- | <i>talā'za tek tsupenā'ist</i> , from <i>talā'za</i> , arrowhead. |
| Awl-point----- | <i>.shō.o.laksāist</i> , from <i>.shō'o.l. .soō.Et</i> , awl, applied to elongated diamonds. |
| Beetle or June bug. U----- | <i>.nkokoumā'ist</i> , from <i>.nkokō'um</i> , beetle, june bug. |
| Crossed end----- | <i>ketsā'ks'āist</i> , from <i>.skīts</i> , across, and <i>-āks</i> , end point. |
| Crossed head. UL----- | <i>kītqaināist</i> , from <i>.skīts</i> , across, and <i>qain</i> , head. |
| Crossing middle. UL----- | <i>kītsā'usementwā'ux'w'ā'ist</i> , from <i>-ā'us</i> , middle, together. |
| Diagonal zigzag (also sometimes vertical).----- | <i>kakozollā'ks.āist</i> , from <i>.skazī'tl</i> , tumbling over, leaning bent; <i>-ā'ks</i> , end; <i>.sqā'z</i> , crooked, indirect, wrong.
<i>.nkekazettlā'ks.āist</i>
<i>kakozollaksāist</i>
<i>kazo.tlāks'āist</i>
<i>skozo'tlāks'āist</i>
<i>kakozollāist</i> |
| Ends crossing. UL----- | <i>.skazōx'ā'ist</i> , from <i>.skazō'x</i> , pack saddle, because of the cross bars. |
| Horse. UL----- | <i>.nīcaskaza(h)āist</i> , from <i>.nīcaskā'xa</i> , horse. |
| Incisions. UL----- | <i>.sariē'xāst</i>
<i>.sexierā'ist</i> } from <i>.sē'x</i> , incised, cut. |
| Iron arrowhead----- | <i>ululamūza(h)ā'ist</i> , from <i>sūlulī'm</i> , iron; <i>-ōza</i> , <i>-ūza</i> , round, egg or bead-shaped object. |
| Little dog. UL----- | <i>.skā'kxa(h)ā'ist</i> , from <i>skā'xa</i> , dog. |
| Little standing----- | <i>{tsetseo'iest}</i> from <i>.stsē</i> , erect, upright, standing
<i>{tsalsēo'iest}</i> from the ground; a diminutive form. |
| Nose----- | <i>.spespesaksā'ist</i> , from <i>.spesā'ks</i> , nose. |

⁷ The flap of skin tied around the braids of hair.

Pointed (diamond, lozenge)-----	.skēm.tlāksā'ist, from .skēm'itl, to vanish in a point.
Roots, varieties of (unidentified, edible).	{ <i>hatceiusā'ist</i> , from <i>hatcei'us</i> , tied together. <i>xanezainā'ist</i> , from <i>xaneza'in</i> , root.
Short-----	.tlkakē'kest, from .tlkē'kat, short.
Short ends.} UL-----	{ <i>.stlka.ka'ksā'ist</i> , from .tlkē'kat, short, or .stlkā', something placed, or something attached to the end of another design.
Small ends.}	
Spiral, zigzag. UL-----	.skakenī'tsā'ist, <i>kakanītsā'ist</i> , from .skānī'ts, in progressive circles or spirals, dim. <i>skekanī'ts</i> .
Spurious tribal pattern, imitations.	.tleē'qaā'ist, from .stleē'qa, imitation.
Square point. UL-----	.stēnzānā'ks'ā'ist, <i>stēnezēnēxā'ks'ā'ist</i> , from <i>stēnez?</i> , square or cornered.
Standing ends-----	.stehā'ks'ā'ist, from <i>tsē'ex</i> , people stand, -ā'ks, point, nose, end. <i>tsetse(h)ā'ks'ā'ist</i> .
Thing in mouth-----	.s.nhahaktēnā'ist, from <i>nhaktē'n</i> , holding something in the mouth.
Variegated or marked-----	.stsetsōk(em)ā'ist, from .stso'k, marked, pictured.

DESIGN NAMES ON PLATES

Angle, 12, c; 16, a.	Butterfly, 24, b; 45, c; 51, m.
Arrow, 44, g; 53, b.	Butterfly and leaves, 33, b.
Arrow chain, 53, e.	Butterfly wings, 46, d.
Arrow feather, 53, e.	Cactus, 51, a.
Arrowhead, 8, c; 10, b; 12, b; 15, a; 23, a; 24, c, d; 28, b; 31, d; 33, b; 37, a, b, d, e; 38, d; 39, a-c; 40, d, e; 44, b-d, h i; 45, j; 46, a, d; 52, c, d, g, h; 53, a, d, e; 54, c; 56, d.	Caterpillar, 18, a; 24, e; 26, f; 35, a; 43, c; 49, d; 55, h.
Arrowheads and lakes, 49, f.	Caterpillar in circle, 29, a.
Arrowhead star, 17, b.	Circles, 5, a.
Arrow notch, 24, b; 53, d.	Circling, 40, b; 57, a.
Arrow point, 12, b; 14, d; 24, a; 28, b, d; 36, b; 38, c; 51, d, k; 55, a, c, d.	Cloud, 44, b, g; 52, a-f, j, l; 53, b.
Arrow point star, 45, i; 52, a, b, l.	Cloud on mountain, 25, a, b.
Baskets, 39, a.	Coil, 9, a.
Bead, 9, c; 31, b; 38, c; 41, j; 44, i; 45, m; 52, c, d; 55, g.	Cranes, flying, 53, a.
Beads and copper tubes, 27, d.	Crooked, 57, a.
Bear's foot, 24, a.	Crook, 16, a.
Beaver, 24, d.	Crook, single, 12, c.
Bent ends, 18, a.	Cross, 25, a; 27, e; 41, d; 51, g.
Bent leg, 12, c.	Cross head, 40, b.
Big bead, 36, a.	Deer fence, 28, b; 45, g.
Bird, 36, a; 45, k.	Deer net, 22, d.
Bird flying, 21, a, e; 27, e; 31, b; 46, e, g.	Dentalia, 12, b; 15, a; 26, f; 34, a; 35, c; 46, a; 49, f; 51, f; 56, d; 58, a.
Bowsnake, 29, a.	Diamond, 51, k.
Bullsnake, 26, a; 43, c, d.	Dream design, 45, f.
Buttercup, 55, h.	Duck, 12, c; 16, a.
	Duck's head, 12, c.
	Eagle, 45, j; 46, e, g; 47, e.
	Earth, 44, e.
	Earth and trees, 36, b.

- Embroidery, 7, *a*; 10, *b*; 27, *f*; 32, *c*;
 35, *b*, *c*; 37, *a-c*; 38, *c*, *d*; 40, *d*, *e*;
 43, *c*, *d*; 46, *f*; 48, *b*; 53, *b*; 55, *h*.
 Entwining, 39, *a*.
 Eye, 38, *d*; 49, *f*; 57, *d*.
 Fish net, 22, *d*.
 Flower, 28, *e*; 40, *c*; 42, *i*; 54, *d*; 55, *h*.
 Fly, 10, *b*; 14, *d*; 15, *a*; 16, *a*; 21, *a*, *c*;
 24, *e*; 26, *b*; 28, *e*; 29, *b*; 33, *c*; 42, *i*;
 43, *c*, *d*; 45, *b*, *d*, *e*; 47, *d*; 53, *d*; 55, *h*.
 Foot, 12, *c*; 16, *a*; 18, *a*; 27, *e*; 28, *c*;
 41, *h*; 44, *h*.
 Garter snake, 8, *d*; 9, *a*.
 Goose, flying, 14, *c*; 21, *c*; 24, *b*; 57, *c*.
 Grave box, 5, *a*; 21, *c*; 22, *a*, *d*; 31, *a*;
 32, *c*; 44, *a*; 56, *b*; 57, *a*.
 Ground, 44, *e*.
 Half arrowhead, 12, *b*; 26, *d*; 35, *c*; 37, *a*;
 39, *b*; 41, *b*; 44, *h*; 45, *m*; 49, *d*, *f*; 51,
f; 58, *a*.
 Half circle, 40, *b*.
 Half fly, 52, *e*, *f*.
 Half mouth, 35, *a*.
 Half mule (lily root), 52, *e*, *f*.
 Half star, 52, *e*.
 Hammer, 33, *b*.
 Head, 19, *a*; 20, *a*; 31, *f*; 52, *l*; 57, *b*.
 Heaped up, 32, *c*.
 Heart, 40, *b*.
 Hook, 12, *c*; 18, *a*; 41, *h*; 44, *h*.
 Hook, double, 16, *a*; 28, *c*.
 Hook, single, 27, *e*.
 Hooks, crossing, 44, *d*; 45, *b*.
 Horns, points called, 52, *l*.
 Incisors, 8, *c*.
 Indian paint brush, 40, *c*, *e*.
 Kazotlaks (?), 57, *a*.
 Ladder, 14, *d*; 22, *b*; 31, *b*, *d*; 32, *c*; 39,
b; 44, *c*; 49, *d*.
 Lakes, 21, *c*; 38, *d*.
 Lakes and creeks, 32, *c*.
 Leaf, 33, *b*; 38, *d*; 45, *j*; 49, *f*; 52, *g*, *k*;
 55, *h*.
 Leg, 12, *c*; 16, *a*; 18, *a*; 27, *e*; 28, *c*.
 Lily root, 10, *b*; 21, *a*; 25, *b*; 48, *c*;
 49, *b*; 51, *k*; 52, *g*, *h*.
 Line going around, 9, *a*.
 Little bead, 10, *b*.
 Little crow, 24, *b*.
 Little spot, 10, *b*; 26, *b*.
 Little star, 16, *a*; 47, *d*; 54, *a*.
 Lodge, 53, *d*; 54, *d*.
 Mesh, 21, *c*.
 Moon, 44, *g*; 53, *b*.
 Morning star, 25, *a*.
 Moss cake, 41, *g*.
 Mountain, 17, *a*; 35, *a*; 45, *g*, *h*; 51, *d*;
 52, *e*, *f*, *l*.
 Mountain side, 53, *d*.
 Mouth, 11, *b*; 18, *a*; 19, *a*; 22, *a*;
 29, *a*, *c*; 32, *b*; 48, *c*; 50, *d*; 55, *h*;
 57, *a*, *f*.
 Necklace, 7, *a*; 9, *c*; 12, *c*; 21, *a*, *c*;
 23, *a*; 24, *a*, *b*; 27, *c*, *d*, *f*; 31, *b*, *d*;
 34, *a*; 35, *b*; 38, *d*; 52, *a*, *b*, *i*; 57, *c*.
 Net, 28, *c*; 31, *a*.
 Notch, 9, *c*; 11, *b*; 12, *c*; 18, *a*; 22, *a*;
 29, *a*; 32, *b*; 35, *a*; 43, *c*; 48, *c*;
 56, *d*; 57, *a*, *f*.
 Otter, 45, *j*.
 Packstrap, 18, *d*; 22, *d*; 28, *b*; 31, *a*;
 33, *c*; 55, *a*, *c*.
 Paint pouch, 9, *c*; 33, *d*.
 Part of a design, 33, *d*; 46, *f*.
 Part of grave box, 5, *a*.
 Part of zigzag, 16, *a*.
 Patch, 36, *b*.
 Pelt, 45, *i*.
 Pipe, 27, *e*; 45, *g*, *h*.
 Points, short, 8, *c*.
 Points, sharp, 28, *d*.
 Rain, 9, *c*; 41, *c*; 51, *c*.
 Rainbow, 41, *e*.
 Rattlesnake, 18, *b*; 43, *c*, *d*.
 Rattlesnake tail, 14, *c*.
 Ribs, 17, *h*; 38, *d*; 51, *b*.
 Rolls of Indian hemp bark, 5, *a*.
 Root digger, 40, *b*.
 Rope, 27, *f*.
 Scratch, 8, *c*.
 Snake, 18, *b*; 21, *a*; 24, *a*; 26, *a-c*;
 33, *c*; 37, *d*, *e*; 38, *c*; 41, *i*; 43, *c*, *d*;
 45, *l*; 50, *b*; 55, *h*; 56, *d*.
 Snake-skins, 39, *a*; 45, *l*, *m*; 46, *f*;
 51, *h*.
 Snake-tail, 51, *h*.
 Snake-track, 24, *e*; 31, *d*; 35, *a*; 37,
d, *e*.
 Snare, 21, *c*; 28, *b*.
 Spear-blade, 40, *d*, *e*.
 Spear-head, 44, *d*; 52, *a*, *b*.
 Spot, 16, *a*; 27, *b*; 32, *c*; 41, *a*, *c*, *e*, *f*, *j*;
 44, *g*; 47, *d*; 51, *m*; 52, *l*; 53, *d*, *g*;
 56, *d*.
 Standing, 7, *a*; 34, *a*.
 Standing ends, 56, *d*.

- | | |
|--|---|
| Star, 23, <i>d</i> ; 25, <i>a</i> ; 27, <i>e</i> ; 28, <i>a</i> , <i>c</i> ; 42, <i>i</i> ;
44, <i>g</i> ; 45, <i>g-i</i> , <i>m</i> ; 46, <i>d</i> ; 51, <i>g</i> ; 52,
<i>a-d</i> ; 53, <i>b</i> , <i>c</i> ; 55, <i>h</i> . | Teeth, string of, 27, <i>d</i> . |
| Star with sky background, 41, <i>f</i> . | Thunderbolt, 45, <i>j</i> . |
| Steps, 17, <i>e</i> ; 32, <i>c</i> ; 37, <i>f</i> ; 51, <i>i</i> ; 52, <i>j</i> . | Tree, 24, <i>f</i> ; 36, <i>b</i> . |
| Stripe, 14, <i>a</i> ; 34, <i>b</i> ; 49, <i>d</i> . | Tsené'ka, 9, <i>c</i> ; 48, <i>c</i> . |
| Stripe, leaning, 41, <i>c</i> . | Twisted, 27, <i>f</i> . |
| Striped snake, 26, <i>e</i> ; 27, <i>a</i> . | Twisting, 22, <i>d</i> . |
| Sun, 44, <i>f</i> . | Underground house, 44, <i>e</i> ; fig. 116. |
| Swallow, 21, <i>c</i> . | Wave, 53, <i>c</i> . |
| Tadpole, 36, <i>a</i> . | Xanaxa'in, 12, <i>b</i> ; 29, <i>c</i> ; 51 <i>f</i> , <i>h</i> ; 58 <i>a</i> . |
| Teeth, 8, <i>c</i> ; 35, <i>a</i> . | Zigzag, 17, <i>e</i> ; 18, <i>a</i> ; 28, <i>b</i> , <i>d</i> ; 31, <i>b</i> , <i>d</i> ;
36, <i>b</i> ; 37, <i>f</i> ; 51, <i>d</i> , <i>i</i> , <i>k</i> ; 55, <i>d</i> , <i>g</i> ; 57,
<i>c</i> , <i>f</i> ; 58, <i>a</i> . |

DESIGN NAMES ON PLATES IN FARRAND'S BASKETRY DESIGNS OF SALISH INDIANS

PLATE XXI

- | | |
|---|---|
| 1. Flying geese (=24, <i>b</i>). | 9. Flies, Arrowheads, and Half circles
(=55, <i>h</i>). |
| 2. Rattlesnake's tail (=14, <i>c</i>). | 10. Flounders (Quinault). |
| 3. Flying birds. | 11. Head with mouth, teeth, and hair;
below, Arrowhead (=Frontis-
piece, top basket). |
| 4. Snake tracks (=37, <i>d</i>). | 12. Flies (=43, <i>d</i>). |
| 5. Snake tracks (=35, <i>a</i>). | 13. Head with open mouth; below,
Arrowheads (=56, <i>d</i>). |
| 6. Flies, Snake tracks (?), Arrowheads
(=43, <i>c</i>). | 14. Grouse, Tracks, and Earth line. |
| 7. Snake (=8, <i>d</i>). | |
| 8. Butterfly wings (=Frontispiece,
bottom basket). | |

PLATE XXII

- | | |
|---|--|
| 1. Intestine; below, Flies (=29, <i>b</i>). | 8. Arrowheads (=76, top basket). |
| 2. Net with deer shot by an arrow,
Man, Dogs (=46, <i>h</i>). | 9. Packstrap or Fish net (=22, <i>d</i>). |
| 4. Fern leaf. | 10. Grave box (=28, <i>f</i>). |
| 5. Man with feather in hair, bow, two
arrows; at either end, Ladder (?). | 11. Crossing trails or Stars (=25, <i>a</i>). |
| 6. Arrowheads (=39, <i>a</i>). | 12. Stone hammer (=33, <i>b</i>). |
| 7. Arrowheads of two different shapes. | 13. Fish net (Quinault). |
| | 14. Stars (=28, <i>a</i>). |

PLATE XXIII

- | | |
|--|---|
| 1. Lakes connected by streams, ducks
flying toward the lakes, foot-
prints of animals. | 7. Mountain with lakes in the valley
(=28, <i>b</i>). |
| 2. Arrowheads and Crossing trails. | 8. Ripples of water (Quinault). |
| 3. Rows of lodges. | 9. ? (Quinault). |
| 4. Household utensils. | 10. Lightning (=31, <i>b</i>). |
| 5. Mountain chain (Quinault). | 11. Dream design (=37, <i>c</i>). |
| 6. Mountain chain (Quinault). | 12. Chilcotin basket (=8, <i>a</i>). |

INDEX TO SKETCHES OF DESIGNS¹

Plates 78-94 contain the designs collected by Mr. Teit with the interpretations given by him. It seemed best not to change the list because for additional designs the explanations could not be given. As stated before, the collection was made by Mr. Teit in the course of a considerable number of years and the information embodied in them was collected from all the divisions of the tribe.

There are a number of striking omissions in the list; particularly the vertical stripes with diagonal, triangular, and chevron decorations are not fully represented.

It will also be seen that the explanations given in the present list do not quite coincide with the explanations given on the plates, although the differences are of minor importance and do not invalidate the results obtained from the discussion of design elements, pages 422-424. So far as possible identifications of sketches and of very similar designs occurring on photographs have been embodied in the list.

HORIZONTAL LINES

- 1-3. Bead.
4. Striped snake, Coil (?).
5. Cloud, Embroidery, Necklace, String of beads, Dentalia.
6. Hair ribbon, Spot, Beads, Necklace, String of beads, Flies.
7. Hair ribbon, Spot, Beads, Necklace, String of beads, Flies, Snake-skin.
8. Dentalia, Nose-rod, Flying bird or insect, Dragonfly.
9. Cloud, Embroidery, Dentalia, Necklace, String of beads.
10. Cloud, Dentalia, Embroidery, Hair ribbon, Necklace, String of beads.
11. Cloud, Embroidery, Dentalia, Necklace, String of beads.
- 12, 13. Cloud, Embroidery, Dentalia, Necklace, String of beads.
14. Cloud, Embroidery, Dentalia, Necklace, String of beads, Rattlesnake.

HORIZONTAL LINES—continued

15. Cloud, Embroidery, Necklace, Dentalia, Snake.
16. Hair ribbon, Snake, Bullsnake, Beads, Necklace, String of beads, Rattlesnake, Flies.
- 17, 19. Joined, Spliced, Snake.
- 18, 20. Joined, Spliced.
21. Hairy caterpillar, Dentalia, Necklace, Opalile'tsa Eagle (?)
- 22, 23. Striped snake, Coil.
24. Dentalia, Snake or snakeskin, Bullsnake, Rattlesnake.
25. Scratch, Stripe, Lines extending out.
26. Legging with beaded fringe, Clouds appearing above the horizon, Beads (rarely).

DIAGONAL LINES

- 27, 28. Rain, Beads.
29. Leaning, Rainbow, Stripe, Scratch, Lines extending out.

¹ The index is not quite complete.

DIAGONAL LINES—continued

30. Leaning, Rainbow, Striped snake, Stripe (Rainbow stump).
31. Leaning, Rainbow, Little ladder, Stripe (Rainbow stump).
32. Scratches, Rainbow, Stripe, Rainbow stump.
33. Rainbow, Little ladder, Striped snake.
34. (?)
35. Rain.
36. Xanaxa'in (an edible root).
37. Xanaxa'in, Stripe, Dentalia.
38. Striped snake.
39. Stlupaist or twisted, Xanaxa'in.
40. Stlupaist or twisted, Xanaxa'in, Dentalia.
41. Arrowhead, twisted, Xanaxa'in.
42. Half arrowhead, Xanaxa'in, Dentalia.

VERTICAL LINES

- 43, 44. Rain, Spot, Bead.
45. Woodworm, Hair ribbon, Snake, Caterpillar, Spot, Necklace.
46. Rain, Spot, Bead, Necklace, Dentalia.
47. Frame, Legging.
- 48, 49. Legging.
50. Girl's frame (tsexa'ksten), Legging.
- 51, 52. Legging.
53. False legging.
54. False legging, Striped legging.
- 55-59. Dentalia and Embroidery.
60. (?)
61. Lines extending out, Stripe, Scratch.
62. Striped snake.
63. Snake, Ladder, Hair ribbon, Woodworm.
- 64, 65. Snake, Caterpillar, Hair ribbon, Woodworm.
66. Snake, Bullsnake.
67. Snake, Bullsnake, Snake's head (rarely), Woodworm.
68. Snake, Bullsnake, Bead, Fly, Necklace, String of beads.

VERTICAL LINES—continued

69. Snake, Snakeskin, Necklace.
70. Snake, Snakeskin.
71. Snake, Snakeskin, Combined snake track and half arrowhead.
72. Snake, Rattlesnake, Garter snake, Necklace.
- 73, 74. Bead, Dentalia, Necklace, Rain.
75. Bead, Dentalia, Rain (rarely), Necklace.
76. Bead, Necklace.

DIAGONAL ZIGZAG, HORIZONTAL

77. Necklace of dentalia or tubers? Beads, Pendants.
78. Arrowhead, Zigzag, Necklace with pendants.
79. Snake, Snake track, Mountain tops, Zigzag, Caterpillar, Pack strap.
80. Snake, Snake track, Mountain tops, Zigzag, Caterpillar, Pack strap.
81. Snake, Snake track, Pack strap, Mountain, Caterpillar.
82. Pack strap (connected points or open middles), Rainbow connected, Necklace (rarely), Zigzag, Meandering, Snake.
83. Snake, Bullsnake.
84. Necklace, Bead.
85. Rainbow, Necklace, Part of grave box (rare), Grasshopper.
86. Zigzag (flat or wide points), Half circles connected, Going back and forth in half circles, Mountains (rarely), Snake tracks (very rare), Deer fence.
87. Grave box.
88. Rainbow, Necklace, Part of grave box (rarely), Grasshopper.
- 89, 90. Mountains.
- 91, 92. Rainbow and cloud, Cloud over mountain, Embroidery, Necklace and pendants, Beads.
- 93, 94. Cloud (Nicola).
95. Deer fence with snares.
96. Indian fortress on top of a rock.²

² This is supposed to have been in the Stlaxa'lux country. It is surrounded by a wall of logs and stones. The diamonds represent gun holes.

DIAGONAL ZIGZAG, HORIZONTAL—CON.

97. Head band, Embroidery on the fronts and backs of dresses, Net, Necklace.
98. Necklace, Variety of net, Embroidery, Dress design.
99. Dress design.
100. Necklace, Rainbow, Part of earth lodge (rarely), Dress design.
101. Necklace, Rainbow (Lytton), Half circle, Embroidery, Half of a design, Part of a grave box (rare), Dress design, Grasshopper.
- 102, 103. Arrowpoints, Necklace.

DIAGONAL ZIGZAG, VERTICAL

104. Trail, Snake tracks, Snake, Contorting, Ascending zigzag.
105. Grasshopper, Grasshopper leg.
106. Wave (two turns), Zigzag, Grasshopper.
107. Wave (two turns), Zigzag, Grasshopper.
108. Wave (short turn), Zigzag, Grasshopper.
109. Wave (three turns), Zigzag, Lightning (rarely), Snake or Snake track.
110. Wave (four turns), Zigzag, Snake or Snake track.
111. Blanket, Zigzag (up and down), Snake or Snake track.
- 112, 113. Caterpillar, Lightning (rarely), Grasshopper, Woodworm borings.
- 114, 115. Trail, Parflèche (rarely), Ascending zigzag, Snake, Snake track, Contracted middles, Pack strap (rarely).
- 116, 117. Snake, Bullsnake, Caterpillar, Garter snake.
118. Snake, Bullsnake, Caterpillar, Garter snake, Striped snake.
119. Snake, Caterpillar, Garter snake, Striped snake.
120. Snake, Bead necklace, Caterpillar.
121. Snake, Woodworm, Caterpillar.
- 122-125. Striped snake.
- 126, 127. (?)

THE ZIGZAG COMPOSED OF VERTICAL AND HORIZONTAL SECTIONS

- 128, 129. Snake and snake track (rarely), Caterpillar, Grasshopper.
130. Snake and snake track (rarely), Caterpillar, Grasshopper, Lightning.
131. Snake and snake track (rarely), Caterpillar.
132. Snake track.
133. Mountain, Zigzag, Necklace.
134. Mountain, Zigzag, Necklace, Caterpillar.

THE CHEVRON

135. Butterfly, Wing, Arrowpoint, Angle.
136. Butterfly wing, Butterfly.
137. Necklace, Butterfly (rarely), Broken or bent middle.
138. Angle, Arrowpoint.
- 139, 140. Arrowpoint.
141. Arrowhead (heaped up or overlapping).
142. Arrowhead.
143. Arrowhead.
144. Tree, Fir branch, Branch.
145. Tree, Fir branch.
146. Waves (one turn), Angle, Arrowhead, Part of zigzag (Utā'mqt), Grasshopper.
147. Bent leg, Broken back, Broken rib, Rib, Grasshopper.
148. Bent leg, Broken back, Grasshopper, Rib.
149. Angle, Arrowpoint.
150. Fish backbone (Spuzzum).
151. Butterfly, Butterfly wing.
152. Broken back, Bent leg, Fishhook, Hook, Crook, Hooked end, Cross, Head, Root digger.
153. Rainbow (half or stumps) (rare), Bent middle, Bent back, Bent leg, Striped snake (rare).
154. Rainbow (half or stumps) (rare), Bent middle, Bent back, Bent leg, Striped snake (rare).

THE RIGHT ANGLE WITH ONE LONG SIDE

155. (?).
 156. Leg, Foot, Grasshopper.
 157, 158. Leg, Foot, Caterpillar, Bent knee.
 159-162. Leg (variation), Foot (variation), Caterpillar, Double hook, Crook.
 163. Leg, Foot (rarely), Caterpillar, Notch.
 164. Leg (variation), Necklace, Beads, Dentalia, Grasshopper (rarely) (arranged spirally and horizontally).
 165. Leg (variation), Necklace (rarely), Dentalia, Grasshopper.
 166-168. (?).
 169. Hook, Hooked end, Fishhook, Foot, Grasshopper.
 170. Leg, Foot, Grasshopper.
 171. Grasshopper.
 172. Leg, Foot.
 173, 174. Leg, Foot, Grasshopper.
 175. Caterpillars crossed.
 176. Caterpillar.
 177. Caterpillar, Double hook, Double crook, Angle, Bent leg.
 178. (?).
 179. Caterpillar, Double hook, Double crook, Angle, Bent leg, Duck.
 180. Root digger, Cross, Head.
 181. Root digger, Cross, Head (possibly from whites), Fishhook(?).
 182. Leg, Foot.
 183. Hooked end, Leaning, Hook, Fishhook (rarely), Foot, Bent leg, Grasshopper, Leg leaning.
 184. Bent back, Broken back, Broken rib, Bent leg, Grasshopper.
 185. Fishhook.
 186. Fish spear, Bird's foot.

THE MEANDER

- 187, 188. Snake, Snake track (rarely), Mouth.
 189-191. Mouth.
 192. Variant of grave box, Mouth.
 193. Mouths, Notches facing each other.
 194-196. Notch, Mouth, Caterpillar, Skesknits(?).
 197. Snail, Caterpillar, Head, Duck's head.

THE MEANDER—continued

198. Snail, Caterpillar, Head.
 199. Necklace.
 200. Necklace, Mountain, Zigzag steps.
 201, 202. Necklace, Cloud and mountain, Zigzag half circles, Stepped half circles, Embroidery, Clouds, Steps.
 203. Necklace, Cloud and mountain, Zigzag half circle, Stepped half circle, Embroidery, Clouds.
 204. Necklace, Cloud, Mountain, Zigzag half circles, Stepped half circles, Embroidery.
 205. Cloud, Zigzag, Embroidery, Half design.
 206. Star, Star notched or stepped all around, Gnawed all around.
 207. Star, Stepped star, Variation of ladder or necklace(?), Notched or gnawed edges all around, Woven bag design.
 208. Star, Notched star, Star stepped all around, Star surrounded by a cloud, Cloud with star shining through it.
 209. Cloud, Necklace, Embroidery, Cloud and mountain.
 210. Cloud, Embroidery, Half of a design.

CROSSED LINES

- 211, 212. Star, Small star, Fly (rarely), Flying birds or insects.
 213. Star.
 214. Star, Fishline reel.
 215. Star, Big star.
 216. Star, Big star (?), Morning star, Cross.
 217. Star, Morning star.
 218. Star.
 219. Star (notched), Leaf (Spuzzum).
 220, 221. Sun (painted on circular lids), Star, Flower.

TRIANGLES

- 222-229. Arrowhead.
 230. Snake(?), Bullsnake(?), Snake's head, Woodworm(?).
 231-233. Arrowhead.
 234, 235. Bush, Mushroom, Tree.
 236. Bush, Mushroom, Tree, Bead.

TRIANGLES—continued

- 237. Butterfly(?).
- 238. Arrowhead.^{3 4}
- 239. Butterfly, Wing of butterfly.
- 240, 241. Arrow, Arrowhead.
- 242. Arrowhead.³
- 243. Arrowhead, Leaf.
- 244. Arrowhead (joined all over), Cloud (rarely), Fern.
- 245. Arrowheads touching bases.
- 246. Arrowhead.
- 247. Arrowhead, Butterfly, Butterfly wing.
- 248. Butterfly.
- 249-251. Arrowhead.
- 252. Arrowheads entering one another.
- 253. (?).
- 254. Arrowheads touching bases.
- 255, 256. (?).
- 257. Arrowhead, Ladder.
- 258-260. Parflèche(?)
- 261. Butterfly.
- 262. Leaf (double).
- 263. Tooth, Grizzly-bear tooth, Butterfly (rarely).
- 264-267. Arrowhead (rarely), Tooth, Leaf, Fern leaf.
- 268, 269. Arrowhead, Tooth.
- 270. Parflèche.
- 271. Butterfly, Arrowhead star, Wing.
- 272. Arrowhead, Butterfly, Butterfly wing.
- 273. Tooth (rarely), Arrowhead (rarely), Wing.
- 274, 275. Arrowhead, Butterfly, Butterfly wing.
- 276. Arrowhead.
- 277. Arrowhead, Half arrowhead, Ladder (var.).
- 278. Ladder, Arrowhead.
- 279. (?).
- 280. Ladder, Arrowhead.
- 281. Ladder, Arrowhead.
- 282, 283. (?).
- 284. Arrowheads touching bases, Ladder.
- 285. Arrowheads, Ladder.
- 286. Arrowheads, Half arrowheads.
- 287. Ladder, Notched bark.
- 288. Ladder, Half arrowhead.
- 289. Ladder, Tooth, Cloud (rarely), Half arrowhead.
- 290, 291. Ladder.

TRIANGLES—continued

- 292. Ladder, Arrowhead.
- 293. Ladder, Half arrowhead.
- 294. Tree ladder, Arrowhead.
- 295.⁵ Arrowhead, Ladder for climbing trees.
- 296. Arrowhead, Ladder.
- 297. Bead, Beaded edge, Caterpillar.
- 298. Half arrowhead, Dentalia; Connected, Hair ribbon, Xanaxa'in.
- 299. Swallow, Wing.
- 300, 301. Arrowhead.
- 302. Arrowhead, Snake, Snakeskin.
- 303. Half arrowhead, Xanaxa'in, Ladder, Embroidery (cf. 571).
- 304. Half arrowhead, Xanaxa'in, Hair ribbon, Dentalia, Connected.
- 305. Butterfly, Butterfly wing.
- 306. Single leaf.
- 307. Half arrowhead horizontal, Ladder horizontal.
- 308. Half arrowheads joined all over.
- 309, 310. Swallow, Wing.
- 311. Star, Arrowhead (occasionally).
- 312. Ladder.
- 313, 314. Ladder, Caterpillar.
- 315, 316. Ladder, Arrowhead.
- 317. Ladder, Caterpillar.
- 318. Tree ladder, Arrowhead, Mountain, Caterpillar.
- 319. Star, Arrowhead (occasionally).
- 320. Parflèche.
- 321. Ladder (var.), Contracted middle, Butterfly (rarely).
- 322. Comb, Double comb, Parflèche(?).
- 323-325. Arrowhead, Parflèche.
- 326. Arrowhead, Star, Cross.
- 327. Arrowhead, Arrowhead star, White man's design(?).
- 328. Star, Arrowhead star, Arrowhead cross.
- 329-330. Arrowheads touching bases, Ladder(?).
- 331. Arrowhead, Variation of notched ladder, Bead.
- 332. Arrowhead.
- 333. Star, Arrowhead star (occasionally).
- 334. Arrowhead.
- 335, 336. Arrowhead, Half arrowhead.
- 337. (?).
- 338. Arrowhead.

³ Occasionally used. Formerly beadwork patterns.⁴ Drawn from Indian description.⁵ On a new basket.

TRIANGLES—continued

339. Arrowhead, Bird, Swallow, Dream design, Fern.
 340. Arrowhead, Bird, Swallow.
 341, 342. Arrowhead.

SQUARES

- 343-346. (?).
 347. Bead, Fly, Star.
 348. Bead, Woodworm.
 349. Bead, Star, Hairy caterpillar.
 350. Tsene'ka, Embroidery, Comb.
 351, 352. Big bead.
 353. Tooth.
 354. Necklace, Headband, Beads, Embroidery, Bullsnake, Rattlesnake.
 355. Twisted, Bead, Caterpillar (rare).
 356. Twisted, Bead, Hair ribbon, Necklace, String of beads.
 357. Twisted, Bead, Hair ribbon, Necklace, Bullsnake, Snakeskin.
 358. Embroidery, Bead, Fly, Necklace, Rattlesnake, Snake.
 359. Bead, Necklace, Spot, Joined squares.
 360. Grave box, Mouth (rarely).
 361. Xanaxa'in, Ladder.
 362. Fish net, Deer net.
 363. Snake, Woodworm, Hair ribbon.
 364. Spot, Bead, Hair ribbon, Woodworm.
 365. Snake, Bullsnake, Necklace, Bead embroidery, Fly.
 366. Snake, Snakeskin, Caterpillar, Bead, Step, Embroidery.
 367. Rain (rarely), Necklace of beads, Tsene'ka, Embroidery.
 368. Comb, Embroidery, Tsene'ka (hair ornament).
 369. Big bead, Notch, Cloud.
 370. Big bead, Cloud.
 371. Big bead, Notch, Embroidery, Cloud, Circles.
 372. Big bead, Big spot, Embroidery, Cloud, Necklace, Butterfly, Insect, Bird.
 373. Big bead, Flying insect or bird (Utā'mqt), Caterpillar.
 374. Big bead, Caterpillar, Dentalia.
 375. Star, Fly, Flying bird, Insect.
 376. Big bead, Hat.

SQUARES—continued

- 377, 378. Cloud, Cluster of flies (Ut.), Heaped up, Bead, Embroidery, Part of mula, Spot (heaped up), Part of spotted star (Nicola), Mountain (rare), Caterpillar.
 379. Cloud, Bead, Step, Ladder, Half of a design, Embroidery.
 380-387. Cloud, Cluster of flies (Utā'mqt), Heaped up, Bead, Embroidery, Part of mula (root of wild rice, lily root), Spot (heaped up), Half or part of spotted star (Nicola), Mountain (rare), Caterpillar.
 388. Star (Nicola), Fly (Utā'mqt), Dragon fly.
 389. Fly, Dragon fly, Flying bird.
 390. Cloud, Pipe, Bead.
 391. Big star, Small fly (Utā'mqt), Buttercup (Nicola), Owl's face (Lytton).
 392. Big star, Flower, Buttercup, Owl's face.
 393. Big star (Nicola), Fly (Utā'mqt).
 394. Ornamented star variation.
 395. Leaf (Spuzzum), Star, Bead.
 396-398. Star, Shooting star (Nicola).
 399, 400. Mula, Star (Lower Nicola), Cluster of stars (Nicola), Cluster of flies (Utā'mqt).
 401. Mula, Cluster of flies (Utā'mqt).
 402. Mula, Cluster of flies (Utā'mqt), Cluster of stars (Nicola).
 403, 404. Big bead, Caterpillar.
 405. Big bead.
 406. Ladder, Arrowhead.
 407. Ladder, Big bead, Caterpillar.
 408. Ladder, Caterpillar.
 409. Ladder, Big bead.
 410. Rattlesnake, Big bead.
 411. Ladder of underground house.
 412. Cloud, Embroidery, Fly, Big bead, Gnawed edges all around.
 413. Fly, Big bead, Steps, Snake or snakeskin, Hairy caterpillar, Embroidery.
 414. Embroidery, Step, Big bead, Caterpillar, Snake, Snakeskin.
 415. Star, Arrowhead star (occasionally), Big bead.

SQUARES—continued

416. Contracted middle, Arrowhead, Cloud, Parflèche.
 417. Arrowhead star.
 418. Star, Notched star, Stepped star.

RECTANGLES

419. Star, Arrowhead star (occasionally), Big bead.
 420. Moss cake, Tsené'ka (hair flap).
 421. Window.
 422. (?).
 423. Beads, Part of step design, Big bead, Caterpillar.
 424. Star, Bead.
 425. Star (Nicola), Bead, Fly.
 426. Big bead, Fly.
 427. Big bead, Dentalium, Caterpillar.
 428. Dentalium, Caterpillar.
 429. Dentalium, Caterpillar.
 430. Door.
 431. Eye.
 432. Tsené'ka.
 433. Ladder, Dentalia, Xanaxa'in.
 434. Shell embroidery, Ladder (Cold-water), Dentalia, Xanaxa'in.
 435. Patch (real patch design), Net (rarely).
 436. Patch (Spuzzum).
 437. Bead, Striped bead, Dentalium.
 438. Snake, Bullsnake, Big bead, Fly, Dentalia.
 439. Necklace, Snake.
 440. Snake, Snakeskin, Bullsnake, Fly.
 441. Big bead, Notch, Cloud, Flying bird.
 442. Big bead, Necklace, Steps, Cloud, Embroidery.
 443. Big bead, Necklace, Steps, Cloud, Embroidery, Ladder (variation).
 444. Big bead, Necklace, Steps, Cloud, Embroidery.
 445-447. Big bead, Big spot, Butterfly, Cloud, Embroidery, Flying insect or bird (Utā'mqt).
 448. Necklace (in addition to preceding).
 449. Big bead, Big spot, Butterfly (Spuzzum), Cloud, Notch, Flying insect or bird (Spuzzum), Flying goose.

RECTANGLES—continued

450. Big bead, Big spot, Butterfly (Spuzzum), Cloud, Notch, Flying insect or bird (Spuzzum), Flying goose, Necklace.
 451. Beads, Necklace, Notch, Notch extended, Circling, Caterpillar, Clouds extended.
 452, 453. Cloud extended, Notch, Caterpillar, Flying goose.
 454. Cloud, Mountain, Cluster of flies (Utā'mqt), Bead, Embroidery, Hat, Spot (heaped up), Part of spotted star (Nicola), Hairy caterpillar, Mula, Part of mula.
 455. Big bead, Hat, Dentalia, Hair ribbon.
 456. Big bead, Hat.
 457. Caterpillar, Woodworm.
 458. Spot, Big bead.
 459. Wide-pointed star.
 460. Star, Fly, Flying bird, Insect.
 461. Star (Nicola), Fly (Utā'mqt), Flying bird, Insect.
 462. Star (Nicola), Fly (Utā'mqt).
 463. Dentalia, Ladder.
 464. Dentalia, Ladder, Big beads.
 465. Dentalia, Ladder, Big beads, Steps, Caterpillar.
 466. Dentalia, Ladder, Big beads.
 467. Ladder.
 468. Big beads, Fly, Flying bird, Insect.
 469, 470. Spot, Big beads.
 471. Ladder, Bead, Necklace, Dentalia.
 472. (?).
 473, 474. Hairy caterpillar.
 475, 476. Cloud, Fly, Bead, Embroidery, Caterpillar.
 477. Fly, Bead, Hairy caterpillar.
 478. Steps, Bead, Hairy caterpillar, Ladder.
 479. Big bead, Hairy caterpillar.
 480. Steps, Big bead, Hairy caterpillar, Ladder.
 481. Necklace, Beads, Dentalia.
 482. Big bead, Necklace.
 483. Big bead, Ear-ring.
 484. Bead, Spot, Necklace, Joined squares.
 485. Dentalia, Necklace.
 486. Necklace, Joined squares, Spot.

RECTANGLES—continued

- 487. Necklace.
- 488. Bead, Beaded edge, Caterpillar.
- 489. Necklace.
- 490-491. Big bead, Feathers.
- 492. Star, Cross, Morning star, Big star.
- 493. Bead, Star.
- 494. Star.
- 495. Cloud, Mountain, Necklace, Beads, Zigzag, Half circle.
- 496, 497. Necklace, Beads, Dentalia.
- 498. Big bead, Step, Embroidery, Caterpillar, Dentalia, Snake, Snakeskin.
- 499. Standing points (Spuzzum), Fly (checked part), Tsené'ka, Embroidery, Dentalia, Necklace, Part of a design.
- 500. Tsené'ka
- 501. Caterpillar, Woodworm.
- 502. Mountains and clouds, Beads, Clusters of flies (Utā'mqt).
- 503. Legging fringe, Clouds, Dentalia, Beads, Big spot (rarely), Caterpillar.
- 504. Dentalia, Caterpillar.
- 505. Hand pointing.
- 506. Head, Duck's head, Caterpillar.
- 507. Necklace, Design on dresses, Flying bird, Beads.

DIAMONDS

- 508. Spearhead(?), Snares, Lakes, Leaves, Meshes, Part of a design (Utā'mqt).
- 509. Wasp's nest.
- 510. Mula (root of wild rice), Cluster of flies, Heart, Big bead.
- 511. Star, Eye, Snare, Mesh.
- 512. Star, Eye, Flower.
- 513-515. Star.
- 516. Leaf.
- 517. Leaf double.
- 518. Net, Fence, Pack-strap.
- 519, 520. Fish net, Deer net, Variation of grave box.
- 521. Contracting, Eye, Arrowhead, Snake, Snare, Net, Part of net.
- 522. Contracting, Eye, Big bead.
- 523. Tied ends, Ear-ring.
- 524. Bead, Beaded edge, Woodworm, Caterpillar.

DIAMONDS—continued

- 525. Contracting, Eye, Arrowhead, Snare, Net, Part of net, Big bead, Snake.
- 526. Rattlesnake, Big bead.
- 527. Eye, Contracting, Big bead.
- 528. Connected crosses, Big bead, Snake, Part of net design, Contracting, Eye, Snare.
- 529. Arrowhead, Snake, Snakeskin.
- 530. Snake.
- 531. Rattlesnake, Big bead.
- 532. Arrowhead.
- 533. Arrowhead heaped up (cf. 252).
- 534. Necklace, Big bead, Mula, Clusters of flies (Utā'mqt), Heart (Utā'mqt).
- 535. Necklace, Big bead, Heart.
- 536. Necklace, Bear's foot(?), Tracks(?).
- 537. Necklace, Embroidery, Snake, Net.
- 538. Bear's foot.
- 539. Flower.
- 540. Flower, Star, Leaf.
- 541, 542. Flower, Star, Leaf (rarely).
- 543. Star, Arrowhead(?), Thunderbolt, Flower, Leaf.
- 544, 545. Star.
- 546. Star, Flower, Leaf.
- 547. Arrowhead, Leaf.
- 548. Arrowhead with cross or star, Thunder arrowhead, Thunderbolt, Leaf.
- 549. Beaver's tail.
- 550. Arrowhead.
- 551. (?)
- 552. Big bead, Heart, Mula, Clusters of flies (Utā'mqt).
- 553-555. Arrowhead.
- 556. Parflèche.
- 557. Star, Part of tsupenäist.
- 558. Necklace with pendants, Double zigzag.
- 559. Arrowhead, Eye(?), Star, Beaver (rarely), Variation of necklace, Deer fence and snares.
- 560. Star, Pack strap.
- 561. Net design in fragments.
- 562. Necklace (rarely).
- 563. Tsupenäist (rarely), Net (rarely), Necklace, Double zigzag.
- 564. Butterfly(?), Part of tsupenäist, Wing.

DIAMONDS—continued

565. Butterfly, Part of tsupenäist, Wing.
 566. Zigzag, Deer fence and snares.
 567. Entwining, Zigzag.

RHOMBOIDS

- 568, 569. Spot, Big bead, Dentalia, Caterpillar.
 570, 571. Arrowhead, Necklace, Beaded embroidery, Dentalia, Xanaxa'in.

TRAPEZOIDS

572. Tooth, Grizzly-bear tooth, Butterfly (rarely).
 573-575. Tséné'ka.
 576. Dentalia, Ladder.
 577, 578. Cloud (Nicola).
 579. Cloud, Mountain, Dentalia, Embroidery.
 580. Bead, Beaded edge, Caterpillar.
 581. Snake, Bullsake, Rattlesnake.

THE HEXAGON

582. Snare, Circle, Half or part of grave box.
 583. Grave box.

THE OCTAGON

584. Grave box.
 585. Real grave box (Spuzzum, cf. 520), Lodge (Lytton design).
 586. Big bead, Part of grave box, Necklace.
 587. Variation of grave box, Eye (rarely).
 588. Full moon, Half horizontal zigzag or meander (Spuzzum), Circle, Snare, Part of grave box, Grass-hopper.
 589. Moon.

THE COMBINATION OF SIMPLE GEOMETRIC FIGURES

590. Necklace, Beads, Dentalia, Embroidery of shell, beads, or quills.
 591. Necklace, Beads, Dentalia.
 592. Part of grave box.
 593. Arrow notch, Mountain tops.
 594. (?)

⁶ Painted on circular lids.

⁸ Copied from oilcloth. The general shape is always the same, but there are many varieties of centers.

THE COMBINATION OF SIMPLE GEOMETRIC FIGURES—continued

595. Necklace.
 596. Tséné'ka.
 597, 598. Parflèche, Arrowhead.
 599-601. Parflèche(?).
 602. Arrow.
 603. Parflèche(?).
 604, 605. Star, Arrowhead star.
 606.⁶ Sun, Star, Flower.
 607.⁶ Arrowhead star, Flower.
 608. Star, Arrowhead star, Flower.
 609, 610. Star, Arrowhead star.
 611-613. Star, Arrowhead (occasionally).
 614. Star, Arrowhead (occasionally), Flower.
 615.⁷ Star, Arrowhead (occasionally).
 616. Star, Arrowpoint star, Star notched all around.
 617. (?).
 618. Leaf, Arrowhead.
 619. (?).
 620.⁸ Star, White man's star (Spuzzum).

DESIGNS EITHER GEOMETRIC OR REALISTIC

621. Half moon.
 622. Moon and arrowhead, Full moon, Arrowhead and shield(?).
 623, 624. Rattles, Rattlesnake's tail.
 625. Snake, Bullsake, Woodworm, Snake's head.
 626, 627. Snake, Snake's head, Bullsake, Woodworm.
 628-630. Crow's foot, Bird's foot.
 631, 632. Bear's foot, Comb.
 633, 634. Hand, Fingers.
 635-640. Lizzard.
 641. Moccasin, Inverted sweat house or lodge.
 642. Eagle's nest, Bird's nest.
 643. Panther, Robin's nest, Bird's nest.
 644. Bird's nest.
 645. Sheep horns.
 646. Butterfly.
 647. Flying birds, Swallow, Butterfly (rarely).
 648. Butterfly (rarely), Necklace, Notch, Arrow.
 649. Butterfly.

⁷ Has different kinds of centers.

DESIGNS EITHER GEOMETRIC OR
REALISTIC—continued

650. Butterfly (rarely), Necklace, Notch, Arrow.
 651. Butterfly.
 652-655. (?).
 656. Spearhead, Flower.
 657. Flower.
 658. Flower, White clematis.
 659. Flower, Blue clematis.
 660. Leaves, Flower, Spearhead, Thunderbolt (rarely).
 661. Flower, Arrowhead, Spearhead.
 662. Arrow.
 663. Arrowhead.
 664. (?).
 665-667. Leaf, Pool, Maple leaf.
 668, 669. Berries.
 670. Necklace with tooth pendants, Big beads.
 671. Embroidery, Cactus(?), Dress design.
 672. Arrowhead.
 673. Moccasin trailer, Deer track, Deer hoof.
 674. Moccasin trailer, Deer track, Deer hoof, Tsené'ka, Notch, Notched end.
 675. Notch, Arrowhead, Part of a design, Tsené'ka, Basketry.
 676. Swallow tail.
 677. Tsené'ka.
 678, 679. Leg, Legging.
 680. Hook, Foot (rarely), Leg.
 681. Legging with beaded fringe.
 682. House, Lean-to lodge.
 683-685. Ladder, Tree ladder (Cold-water).
 686. Grave box(?), Ornament(?), Tsené'ka, Woven bag patterns.
 687. Girl's frame.
 688. Heart, Tsené'ka.
 689. Pack strap with fillings, Net, Mesh.
 690. Part of grave box, Butterfly, Kind of fern, Variation of butterfly, Xane'm.
 691. (?).
 692. Mula (Lytton), Dream design(?).
 693. Butterfly (?), Woven bag pattern, Tsené'ka (rarely).

STRONGLY CONVENTIONALIZED

694. Eagle, Bird, Thunder.
 695. Moccasin, Clouds with stars.
 696-699. Duck, Caterpillar.
 700. Spearhead, Thunderbolt and rainbow (rare), Storm clouds.
 701. Spearhead, Thunderbolt and lightning (rare), Storm clouds, Cloud, Fanciful single figure.
 702. Lily root (Mula, Root of wild rice), Snake's tail.
 703. Sweat house.
 704, 705. Butterfly, Butterfly wing.
 706. Eagle, Bird.
 707. Eagle, Flying bird.
 708. Eagle, Flying bird, Dentalia.
 709. Eagle, Flying bird.
 710, 711. Eagle, Bird.
 712, 713. Eagle, Flying bird, Eagle wing.
 714, 715. Flying goose, Bird.
 716, 717. Eagle, Bird.
 718. Eagle, Flying bird.
 719-722. Eagle, Bird, Eagle's or bird's tail.
 723. Eagle, Bird.
 724-730. Flying birds, Swallow.
 731, 732. Flying birds, Swallow, Swallow wing.
 733. Shaman wearing mask.
 734-736. Panther, Deer's head.
 737. Deer's head.
 738. Deer's hoof.
 739. Arrowhead.
 740. Fish spear and fish.
 741-744. Pipe, Foot.
 745. Arrowhead (ornamented).
 746-756. Butterfly.
 757-759. Tree.
 760-764. Pine cones (yellow).
 765. Butterfly or insect.
 766. Half moon(?).
 767. Flying bird, Swallow, Wing.
 768-770. Man, People.
 771-773. Underground house with cross at the head of the ladder, Tipi, Dream designs, Grave mound with cross.
 774. Butterfly.

STRONGLY CONVENTIONALIZED—CON.

775. Bird, Eagle, Opalile'tsa.
 776. Rainbow, Circling half circle,
 Mouth, Notch, Corral, Pack
 strap, Kakanétz.
 777.⁹ Eagle.
 778-780. Eagle's tail.
 781. Eagle's head.
 782, 783. Flying bird.

REALISTIC

- 784, 785. Little men.
 786-789. Leg, Foot.
 790. Little deer.
 791. Deer.
 792. Arrowhead, Star, Stretched bear-
 skin.
 793. Otter.
 794. Beaver.
 795. Sheep horns.
 796. Grouse tracks, Grouse feet, Bird's
 feet, Bird's tracks.
 797. Crow, Bird.
 798-803. Butterfly.
 804-806. Eagle, Bird.
 807. Snake.
 808. Hammer, Comb.
 809, 810. Hammer.
 811. Hammer, Comb.
 812, 813. Comb, Single comb.
 814-817. Lily root (Mula, Root of
 wild rice), Snake's tail.
 818. Tipi, Girl's lodge.

REALISTIC—continued

819. Tipi, Girl's lodge.
 820. Tipi, Girl's lodge, Bird, Foot.
 821. Tipi, Girl's lodge, Earth lodge.
 822, 823. Tipi.
 824. Tipi, Mat lodge.
 825. Sweat house.
 826. House, Lean-to lodge.
 827. Bow.
 828, 829. Bow and arrow.
 830-832. Arrow.
 833. Arrow, Notched feather.
 834. Arrow.
 835. Drill, Arrowhead.
 836. Arrowhead.
 837. Arrowhead, Paint pouch.
 838. Arrowhead, Spear head.
 839. Arrowhead.
 840. Pipe.
 841. Comb.
 842. Rattle, Deer-hoof rattle.
 843. Hand rattle.
 844. Rainbow, Necklace(?), Snowshoe.
 845. Catholic cross (Nicola, Gladwin
 rarely), Star.
 846, 847. Paint pouch (with fringe).
 848. War club.
 849-851. Feather.
 852-854. Cactus.
 855. Leaf.
 856. Tree(?).
 857. Wasp's nest and tree branches.
 858. Moon.
 859. Dream design of snare and animal.

⁹ This is sometimes a central figure on the basket wall, and is then surrounded by tail or head designs. The central diamond represents the heart; the cross, the head; and the checks, the ends of feathers.

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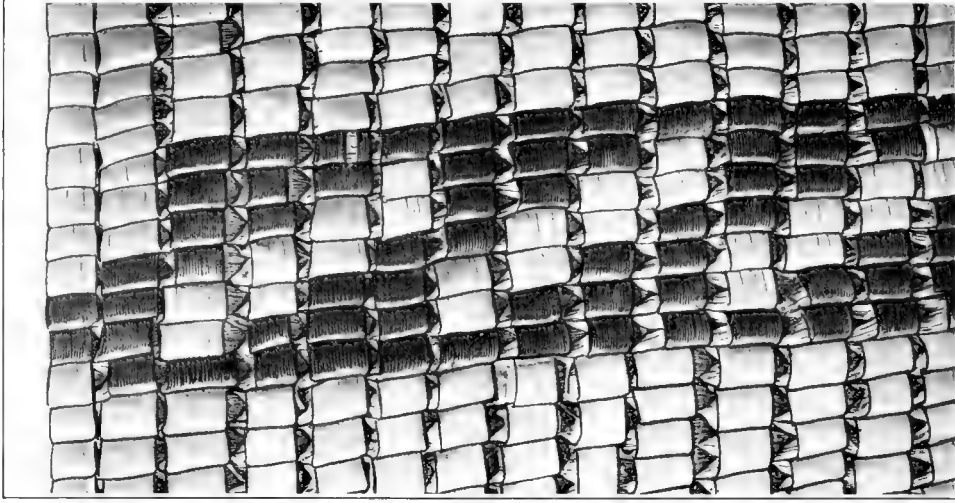
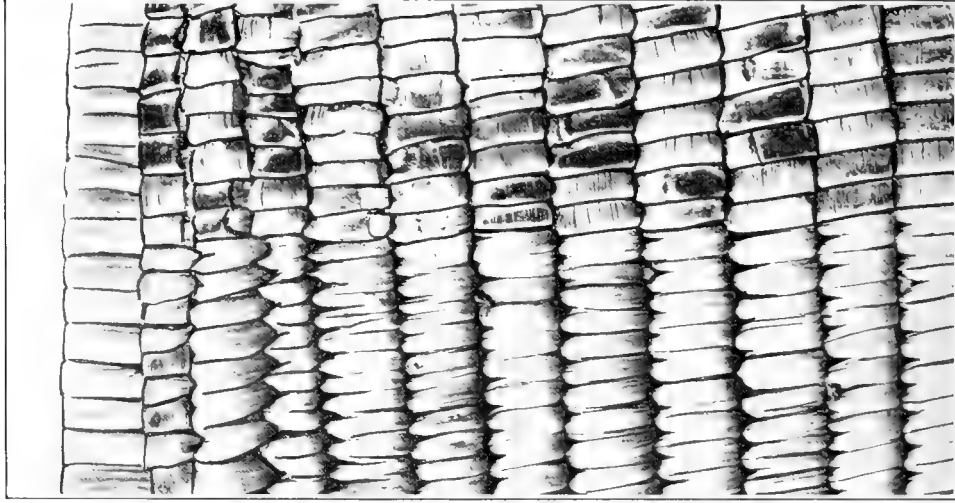
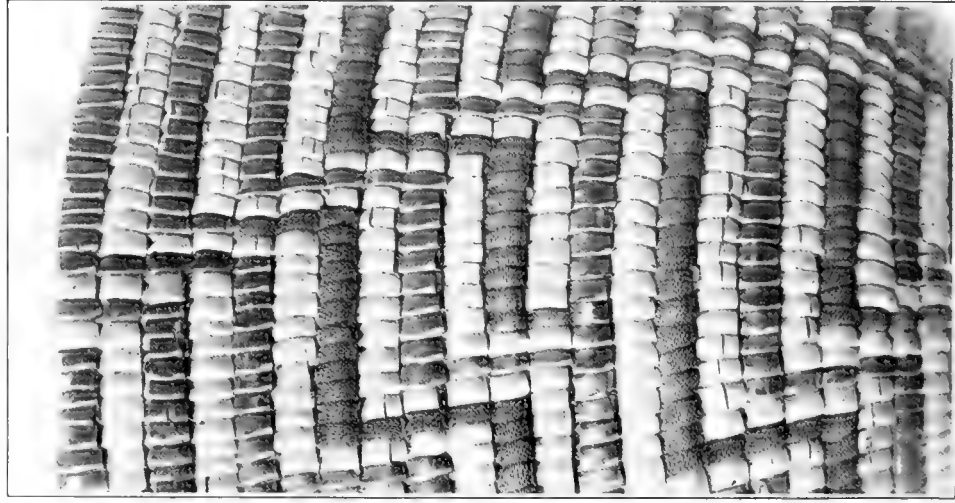


PLATE 1

a, A.M.N.H. 16-1271; *b*, A.M.N.H. 16-8859; *c*, A.M.N.H., 16-5908

REFERENCES TO PLATE

- a*, p. 148. Details of imbrication
b, *c*, p. 163. Details showing regularity of imbricated coils



WOMAN MAKING A BASKET. (P. 167)

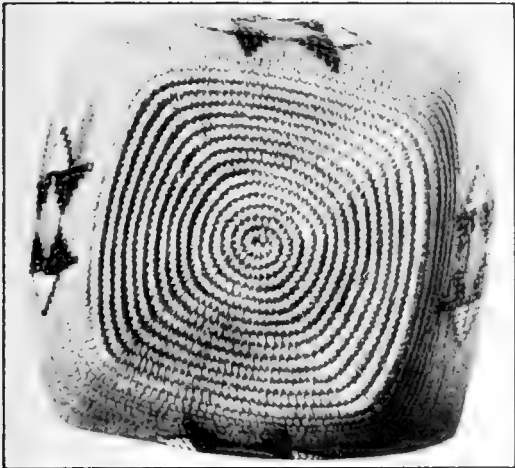


PLATE 3

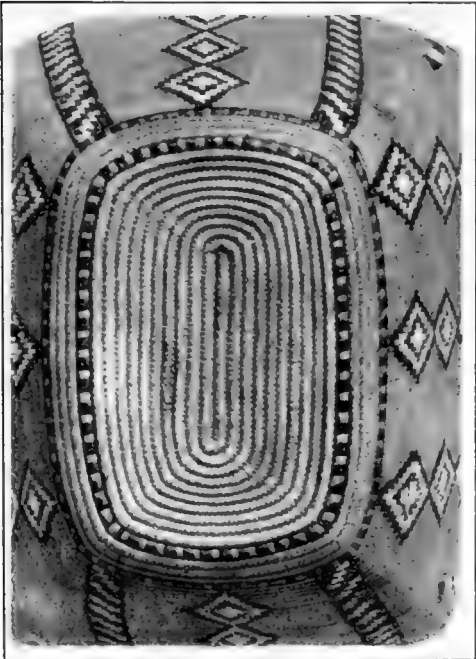
b, A.M.N.H. 16-8837

REFERENCES TO PLATE

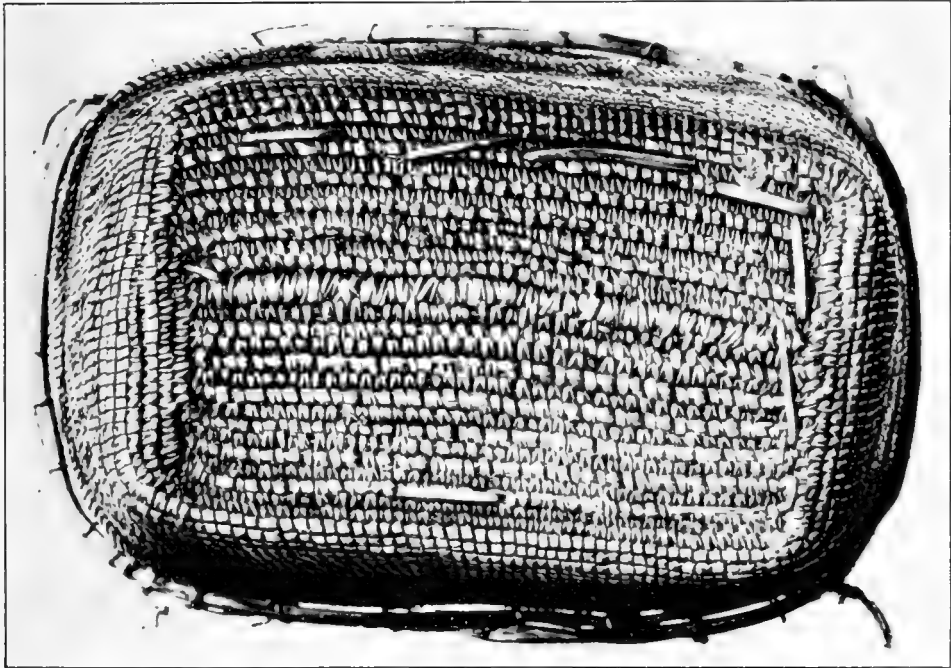
- a*, pp. 169, 172. Watch-spring bottom
 - p. 180. View illustrating wrenched corners
- b*, pp. 163, 170, 172. Elongated watch-spring bottoms
 - p. 180. View illustrating wrenched corners
 - p. 225. Beading on bottom
 - p. 227. Break of horizontal design on corner of basket
- c*, p. 172. Bottom of parallel coils
 - p. 180. View illustrating wrenched corners



a

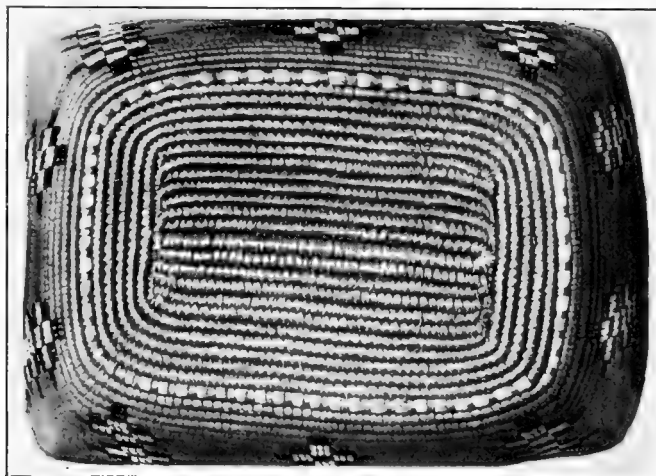


b

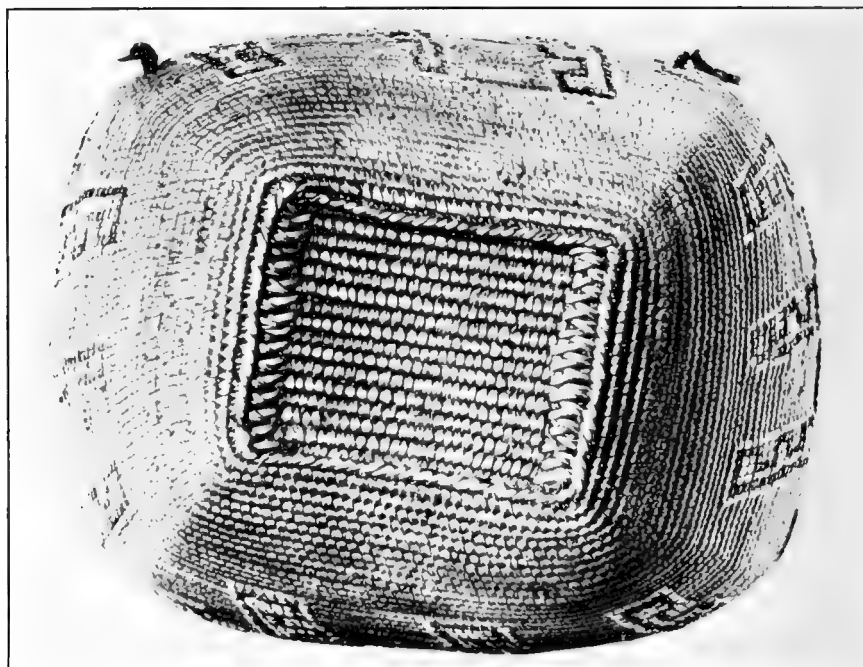


c

BOTTOMS OF BASKETS



a



b

BOTTOMS OF BASKETS

PLATE 4

a, A.M.N.H. 16-1043

REFERENCES TO PLATE

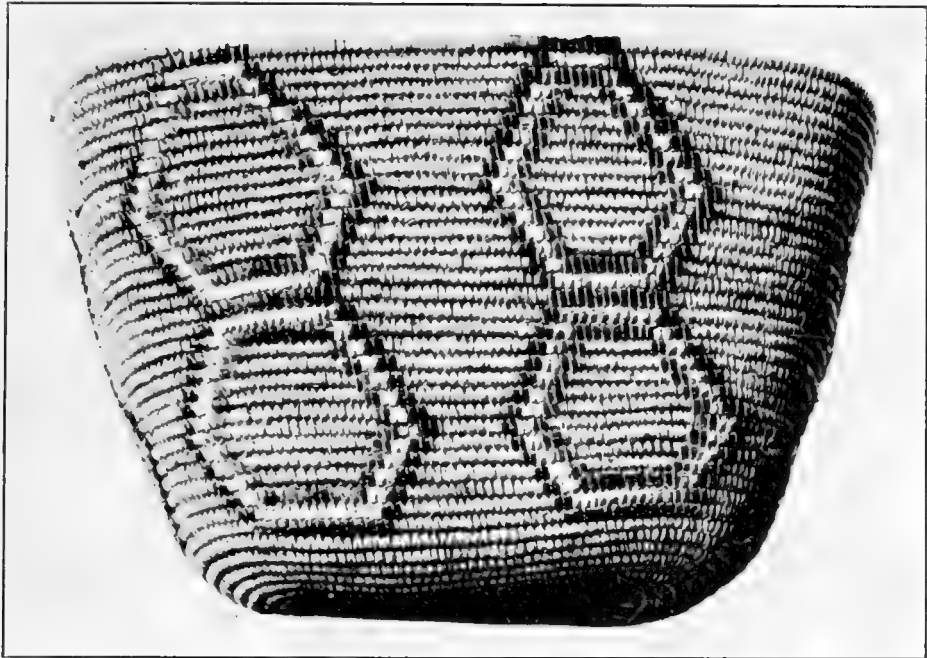
- a*, p. 172. Bottom of parallel coils surrounded by spiral coils
- p. 180. View illustrating wrenched corners
- p. 225. Beading on bottom
- b*, p. 172. Bottom of parallel coils sewed to the walls
- p. 180. View illustrating wrenched corners

PLATE 5

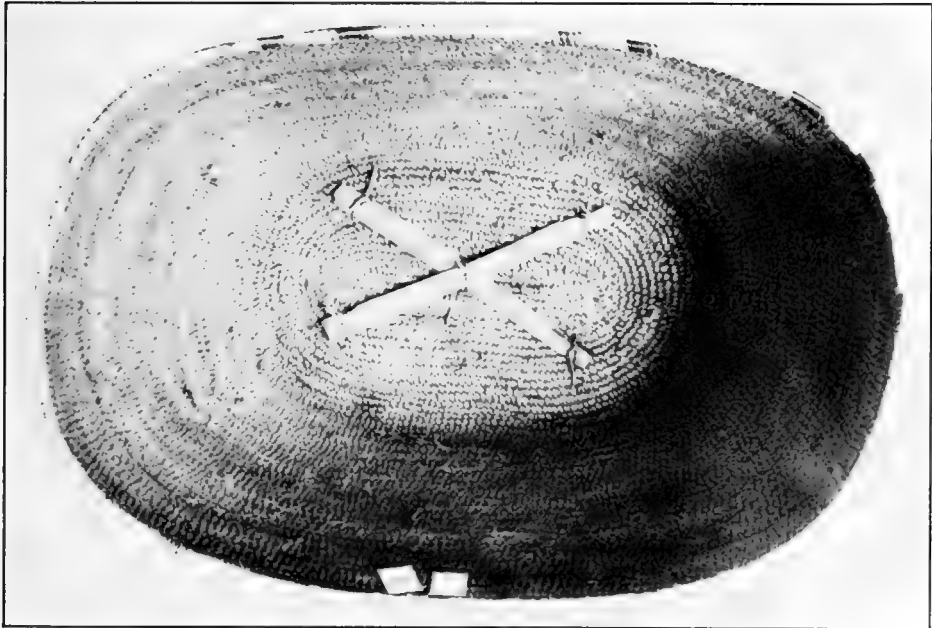
- a*, Thompson. A.M.N.H 16-8733. Basket with warped bottom. Design: "Variation of grave box" (Coldwater, Uts'mqt); "Part of a grave-box pattern" (Spuzzum); "Circles" (Nicola). Also "Rolls of Indian hemp bark which were tied at both ends and in the middle"
- b*, Basket with strengthened bottom

REFERENCES TO PLATE

- a*, p. 173. Basket with warped bottom
p. 254. Hexagonal pattern
- b*, p. 173. Cross sticks for straightening bottom of basket



a



b

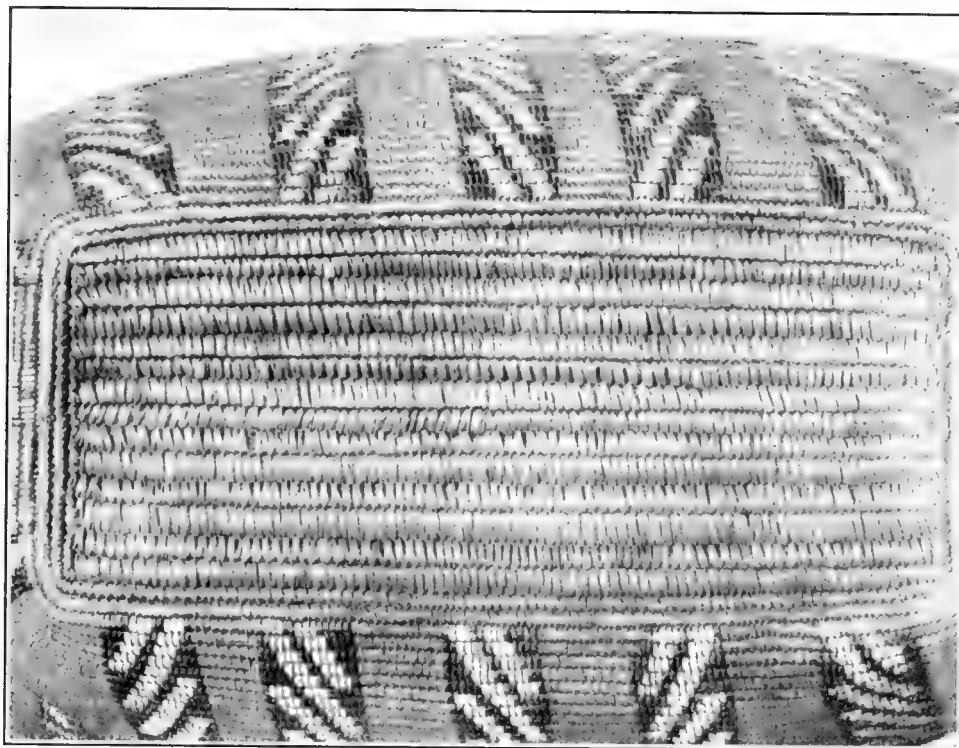
WARPED AND STRENGTHENED BOTTOM OF BASKETS

PLATE 6

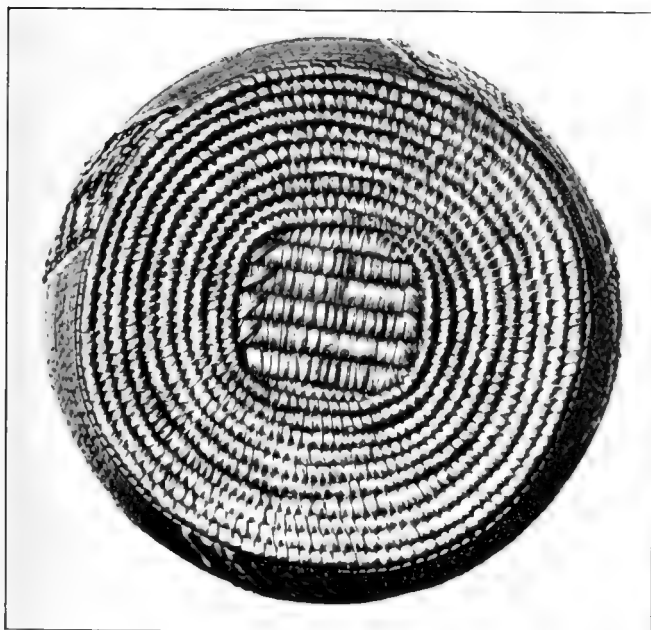
a, Slat bottom, Thompson. A.M.N.H. 16-1325; *b*, slats and coils; *c*, slats

REFERENCES TO PLATE

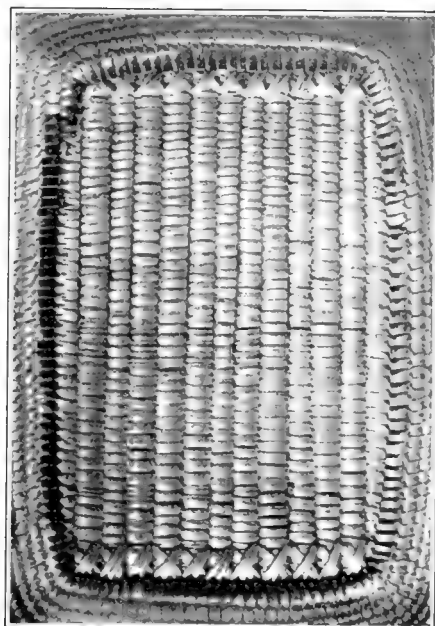
- a*, p. 174. Slat bottom
- b*, p. 172. Slat bottom surrounded by coils
- p. 178. Method of sewing bottom coils to ends of slat bottom
- p. 228. Bottom with bifurcated stitches
- c*, p. 174. Slat bottom
- p. 178. Method of sewing slat bottom to walls of basket



a



b



c

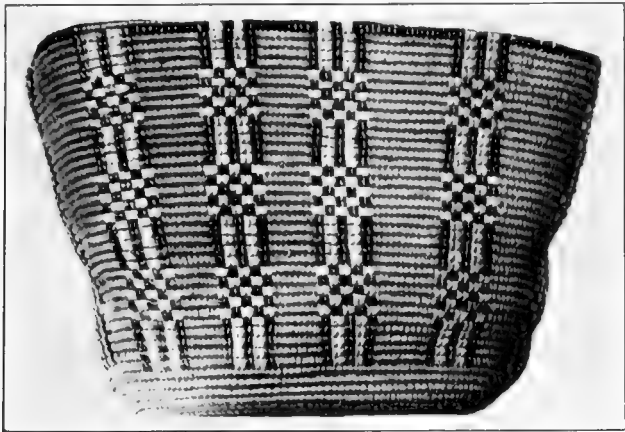
BOTTOMS OF BASKETS

PLATE 7

- a*, Thompson. A.M.N.H. 16-9540. Basket with warped walls. Design: "Necklace of beads and dentalia," "Embroidery," "Standing" (Spuzzum)
b, Chilcotin. U.S.N.M. 247690. Basket with warped walls
c, Lillooet. A.M.N.H. 16-5975. Correction for slanting of coils

REFERENCES TO PLATE

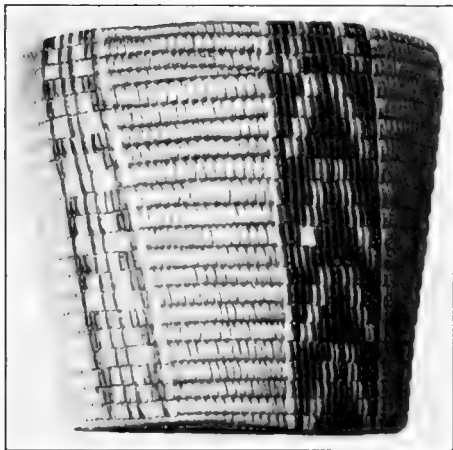
- a*, p. 180. Basket with irregular walls
p. 243. Vertical stripes interrupted by checkerwork
p. 249. Banded squares
b, p. 180. Chilcotin basket with irregular walls, and ends higher than middle
p. 345. Chilcotin basket, general description
c, p. 180. Basket with adjustment of coils to secure a straight rim
p. 242. Lillooet basket with vertical stripes
p. 253. Chevron designs



a



b



c

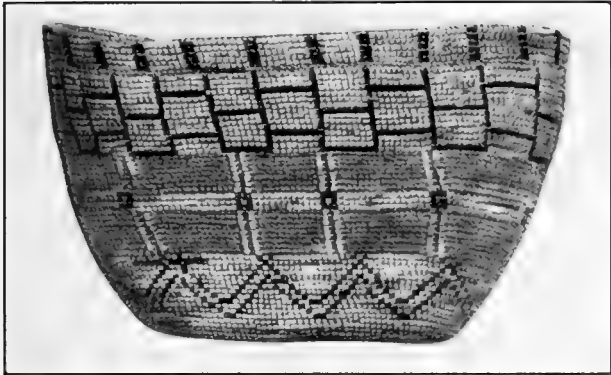
THOMPSON, CHILCOTIN, AND LILLOOET BASKETS

PLATE 8

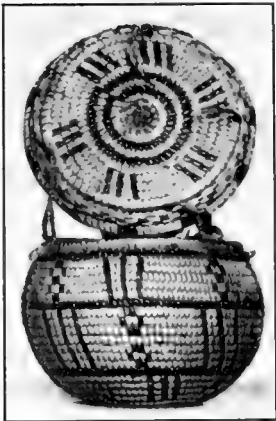
- a*, Chilcotin. A.M.N.H. 16-1382. Basket with depressed center of rim. Design as interpreted by the Thompson: At rim: "Stripe," "Standing;" field, under rim: "Net" (Nicola), "Patch;" next field: "Star design, connected," "Part of a net or mesh;" lowest field: "Zigzag," "Snake," "Deer fence"
- b*, A.M.N.H. 16-5894
- c*, Lillooet. A.M.N.H. 16-5891. Basket with lid. Design: "Scratches," "Short points," "Teeth" (Nicola, Gladwin); "Arrowhead" (Lytton), "Incisions"
- d*, Thompson. A.M.N.H. 16-4604. Tobacco basket with lid. Design: "Snake," "Garter snake"

REFERENCES TO PLATE

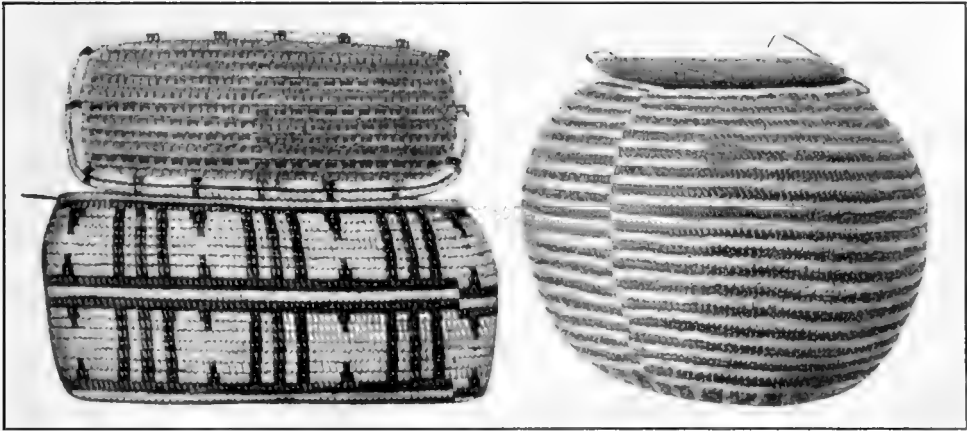
- a*, p. 180. Chilcotin basket with ends higher than middle
- p. 231. Chilcotin basket with characteristic division of decorative field into rim and three divisions, the central one without imbricated background
- p. 345. Chilcotin basket with vertical designs leaning to the left
- b*, p. 186. Basket with lid of watch-spring coiling
- c*, p. 186. Basket with slat lid
- p. 187. Slat lid with encircling coil
- p. 225. Basket with beaded lid
- p. 227. Horizontal decoration with break on long side near corner
- p. 252. Decoration consisting of small isolated triangle on rim
- d*, pp. 186, 187. Basket with lid
- p. 204. Nut-shaped basket with lid
- p. 227. Horizontal decoration showing break
- pp. 234, 262. Horizontal band



a



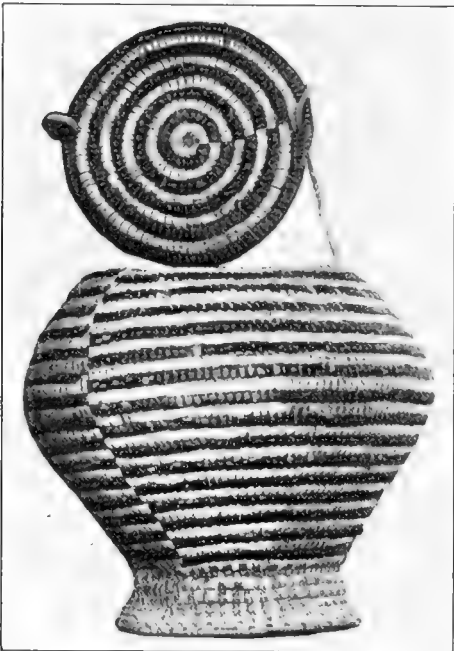
b



c

d

THOMPSON, CHILCOTIN, AND LILLOOET BASKETS



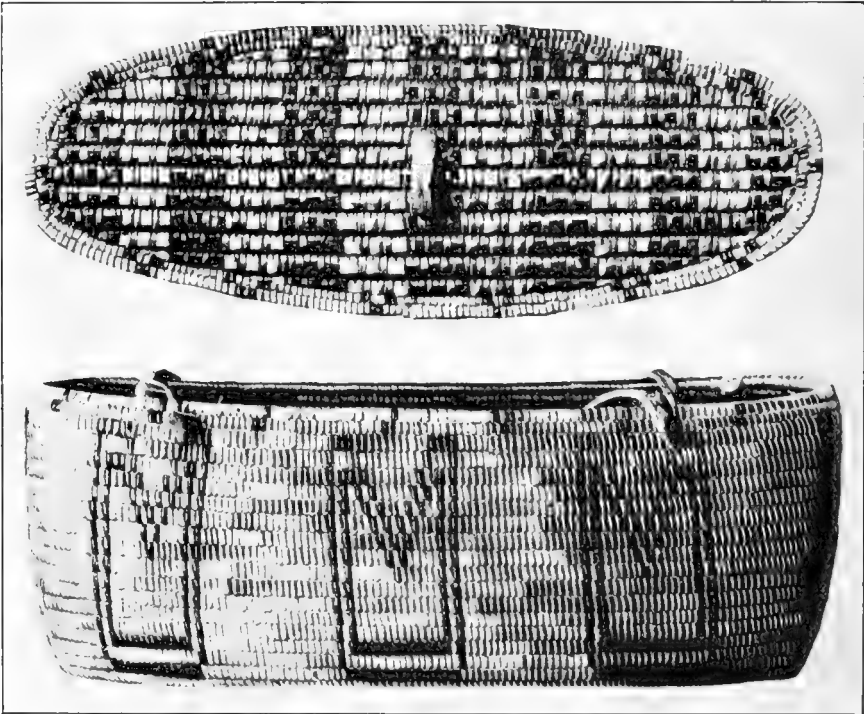
a



b



d



c

THOMPSON AND LILLOOET BASKETS

PLATE 9

- a*, Thompson. A.M.N.H. 16-1032. Basket with lid. Design: "Coil," "Snake" (Thompson); "Line going around" (Nicola, Sṭlaṣa'iuṣu); "Garter snake" (Coldwater, Lytton, Uṭā'mqt, Spuzzum)
b, Thompson. Victoria Museum, Ottawa, VI. M. 185, *a*. Lid of basket. Design: "Coil," "Snake"
c, Lillooet. A.M.N.H. 16-6937. Basket with lid. Design: "Notch," "Necklace," "Tsené'ka," "Pouch with notched mouth." On the lid, "Bead," "Rain"
d, Thompson. A.M.N.H. 16-4639. Tobacco and pipe basket

REFERENCES TO PLATE

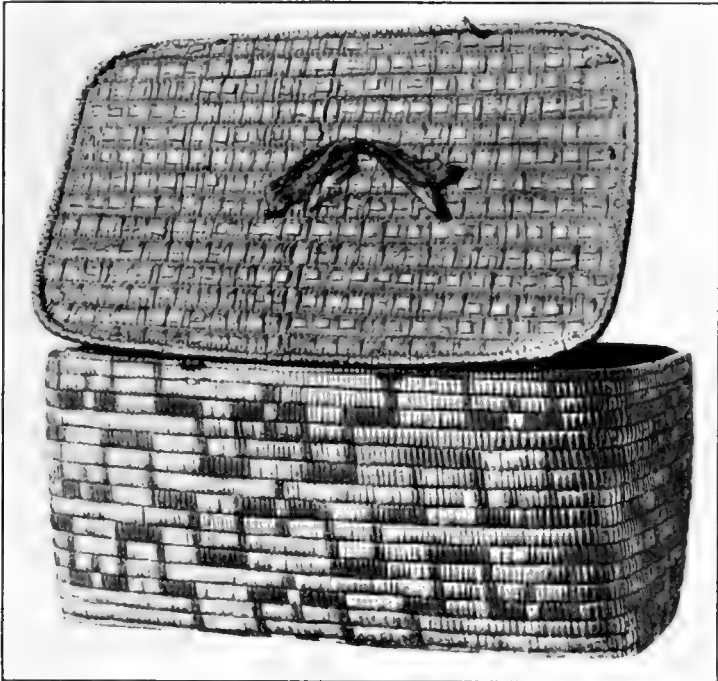
- a*, p. 187. Basket with lid of watch-spring coiling
p. 191. Basket with coiled foot
p. 204. Nut-shaped basket with lid
pp. 234, 262. Horizontal band
b, p. 186. Lid of watch-spring coiling.
c, p. 187. Slat lid with encircling coils
p. 225. Basket with beaded lid
d, p. 208. Basket for tobacco and pipe

PLATE 10

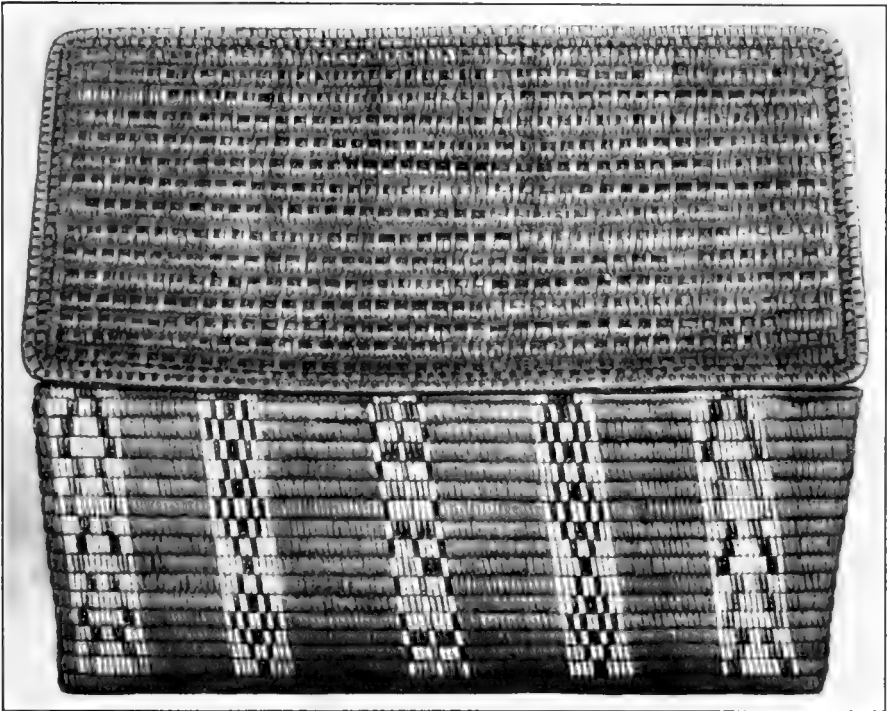
- a*, Thompson. H.M.A.I. 8610. Basket with lid
b, Lillooet. A.M.N.H. 16-5888. Basket with lid. Design on the lid: "Little spot" (Coldwater), "Little head" (Thompson). On the basket walls, stripes 1 and 5, "Arrowhead" (Coldwater); stripes 2 and 4, "Arrowhead" (Coldwater), "Variety of Indian rice" (Lytton), "Embroidery" (Thompson, Lytton); stripe 3, "Snake" (Thompson, Nicola), "Fly" (Utā'mqt)

REFERENCES TO PLATE

- a*, p. 187. Basket with slat lid and encircling rim coil
p. 225. Basket with beaded lid
p. 231. Imbricated zigzag
b, p. 187. Basket with slat lid and encircling double coil
p. 225. Basket with beaded lid
pp. 239, 242. Vertical stripes

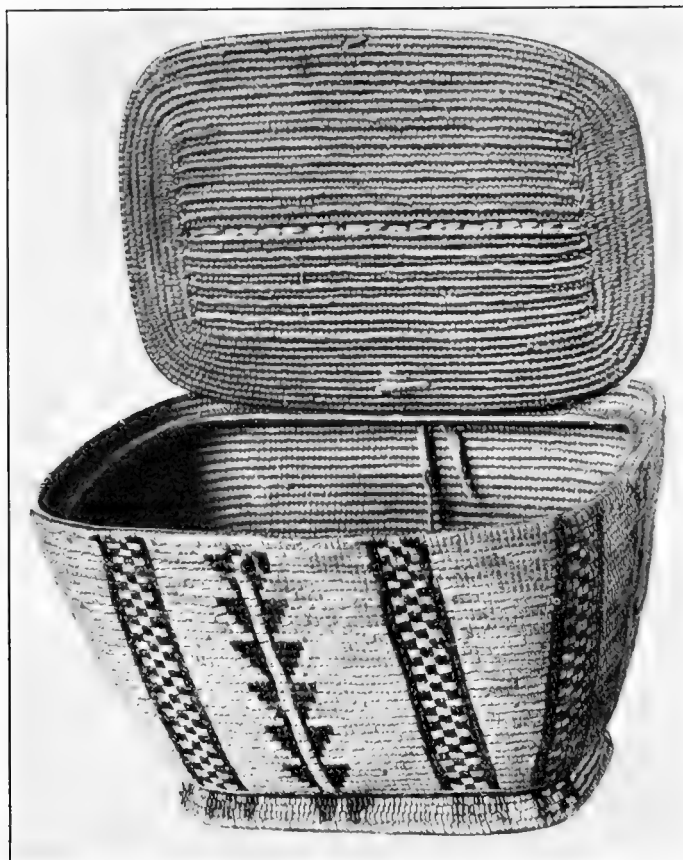
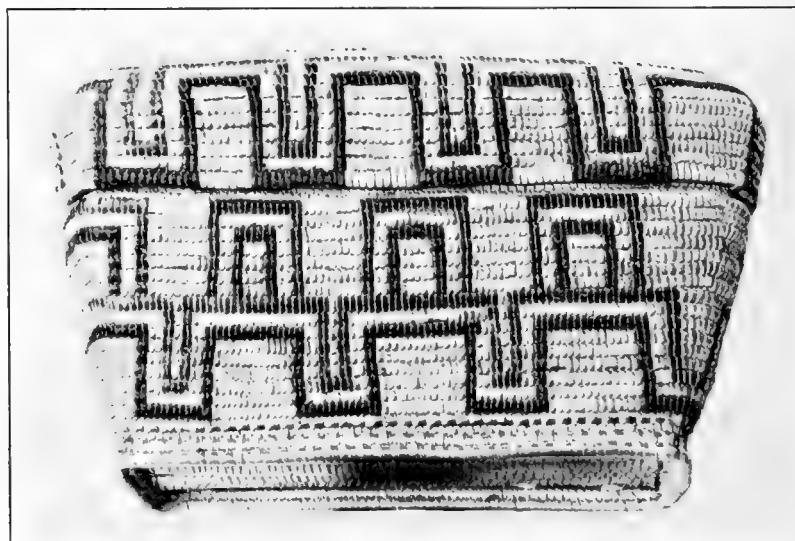


a



b

THOMPSON AND LILLOOET BASKETS

*a**b*

THOMPSON BASKETS

PLATE 11

- a*, Thompson. Basket with lid supported by flange
b, Thompson. A.M.N.H. 16-4645. Basket with lid. Design: "Mouth" (Coldwater); "Notch" (Nicola). Some say that the design was taken from the whites

REFERENCES TO PLATE

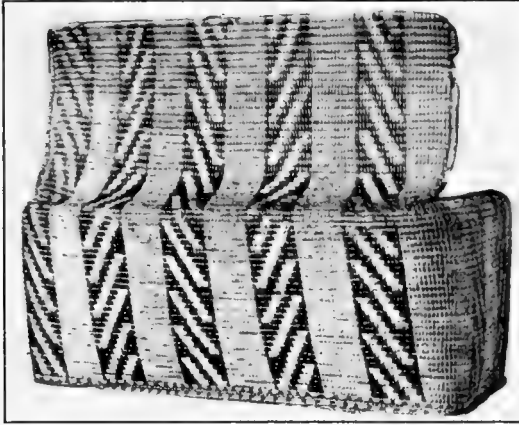
- a*, p. 187. Basket with lid of parallel coils surrounded by spiral coils; smaller than mouth of basket and supported by flange
p. 191. Basket with coiled foot
p. 239. Vertical stripes
b, p. 188. Basket with lid following the lines of the walls
p. 189. Lid worked from outer rim toward center
p. 191. Basket with coiled foot
p. 225. Basket with beaded foot
p. 234. Horizontal zigzags
p. 264. Adjustment of pattern at corners
p. 299. Decorated lid

PLATE 12

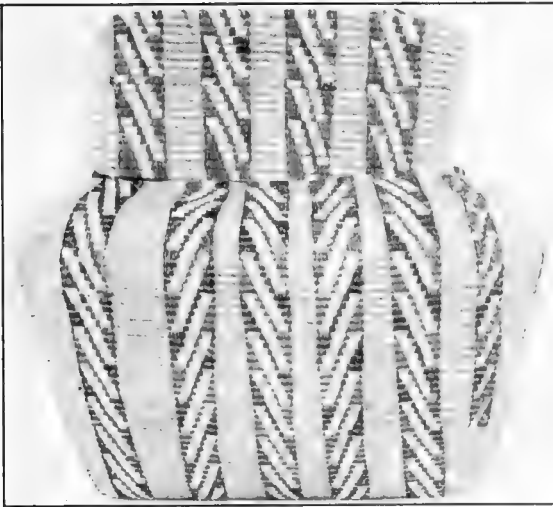
- a*, Probably Thompson. Basket with attached lid
b, Thompson. A.M.N.H. 16-1325. See also Plate 6*a*. Design: "Half arrowhead" (Thompson, Spences Bridge, Lytton, Sṭlaṣa'iuṣu); "Arrowhead" (Coldwater); "Arrowpoint" (Spuzzum); "Xanaya'in" (Spences Bridge, Nicola); "Dentalia" (Lytton, Thompson Siding)
c, Thompson. A.M.N.H. 16-8734. Basket with foot. Design: "Hook," "Single crook," "Angle," "Notch," "Foot," "Leg," "Bent leg" (Thompson, Nicola); "Duck," "Duck's head"

REFERENCES TO PLATE

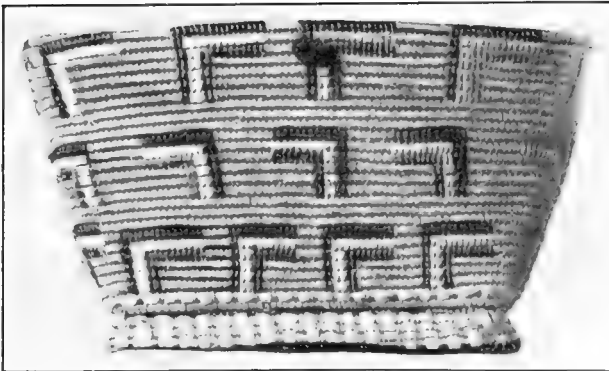
- a*, pp. 189, 206. Basket with attached lid
 p. 208. Storage basket
 p. 239. Vertical stripes
 p. 299. Decorated lid
b, p. 186. Basket with lid of parallel coils
 p. 239. Vertical stripes
 p. 284 (note). Basket with filler
 p. 299. Basket with lid
c, p. 191. Basket with coiled foot
 p. 240. Horizontal arrangement of isolated designs.



a

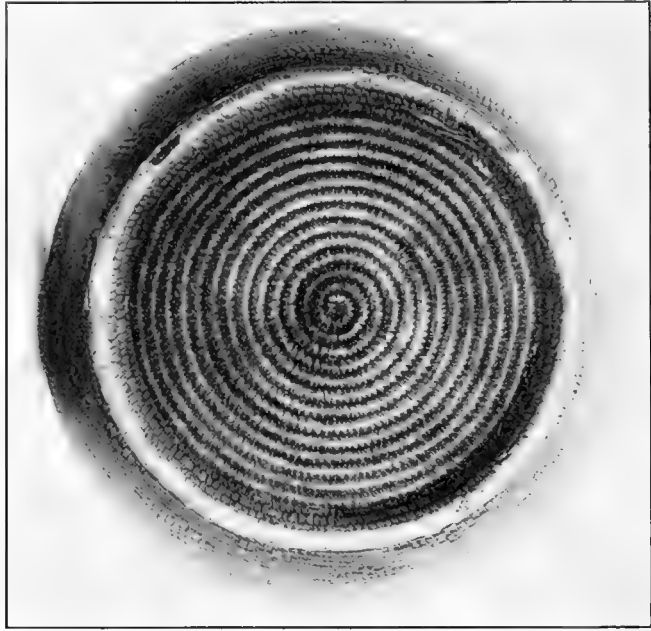


b

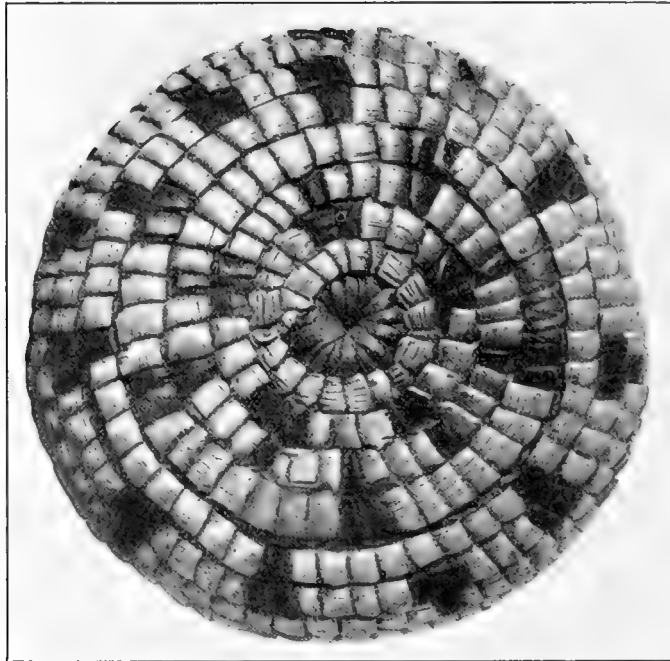


c

THOMPSON BASKETS



a



b

BOTTOM OF THOMPSON BASKET. LILLOOET RATTLE

PLATE 13

- a*, Thompson. A.M.N.H. 16-1044. Bottom finished with two ring coils
b, Lillooet. A.M.N.H. 16-5926. Baby's rattle, seen from the top

REFERENCES TO PLATE

- a*, p. 193. Bottom finished with two ring coils
b, p. 186 (note). End of rattle made by watch-spring coiling
p. 252. Rattle with small isolated triangles

PLATE 14

- a*, Lillooet. A.M.N.H. 16-5912. Basket with handle. Design: "Stripe"
b, Lower Thompson. A.M.N.H. 16-4642
c, Thompson. A.M.N.H. 16-4626. Basket with handle. Design: "Necklace of dentalia and beads" (Gladwin, Lytton), "Rattlesnake tail" (Thompson, Spences Bridge), "Flying goose" (Thompson, Nicola)
d, Lillooet. A.M.N.H. 16-6934. Basket with lid and handle. Design: "Variety of arrowpoint," "Variety of ladder." The stripe connecting the diamonds has been likened to an arrow shaft; again the lid pattern has been called "snake." There are "flies" in the spaces
e, Thompson. A.M.N.H. 16-4605

REFERENCES TO PLATE

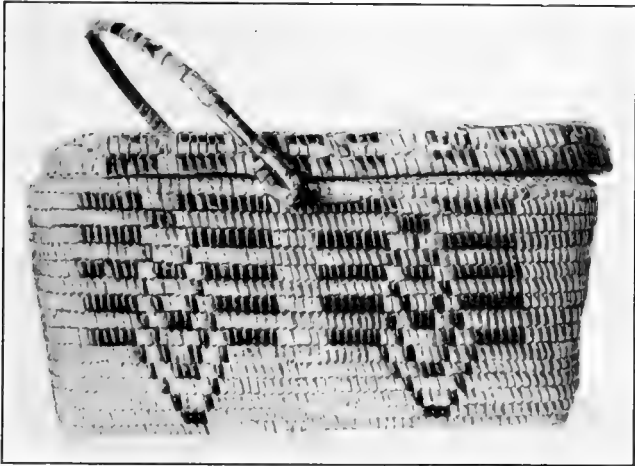
- a*, p. 195. Basket with coiled handle
p. 234. Imbricated vertical design
b, p. 195. Basket with coiled handle
c, p. 195. Basket with coiled handle
p. 299. Basket with lid
d, pp. 195, 204. Basket with lid with knob handle
p. 254. Large diamonds divided by central band
p. 299. Basket with lid
e, p. 195. Basket with coiled handle
p. 234. Imbricated zigzag



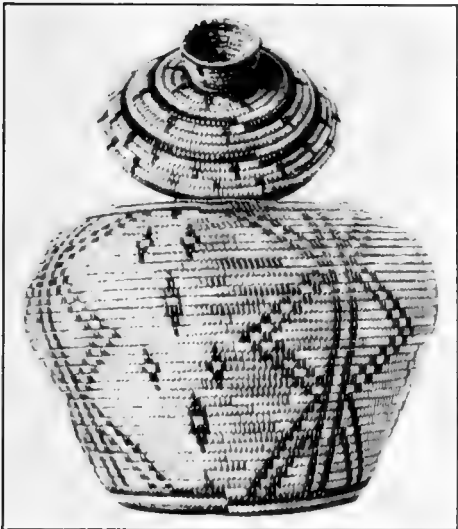
a



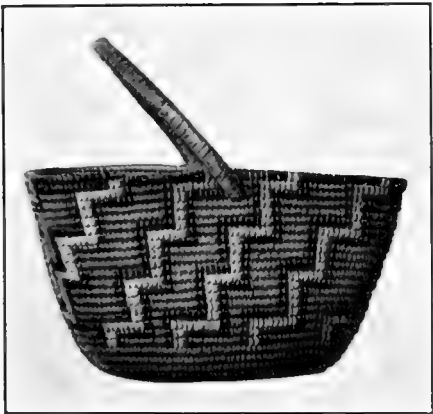
b



c

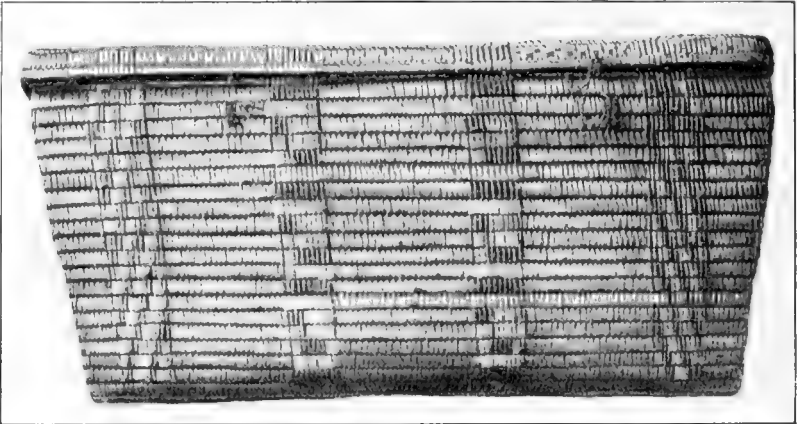


d

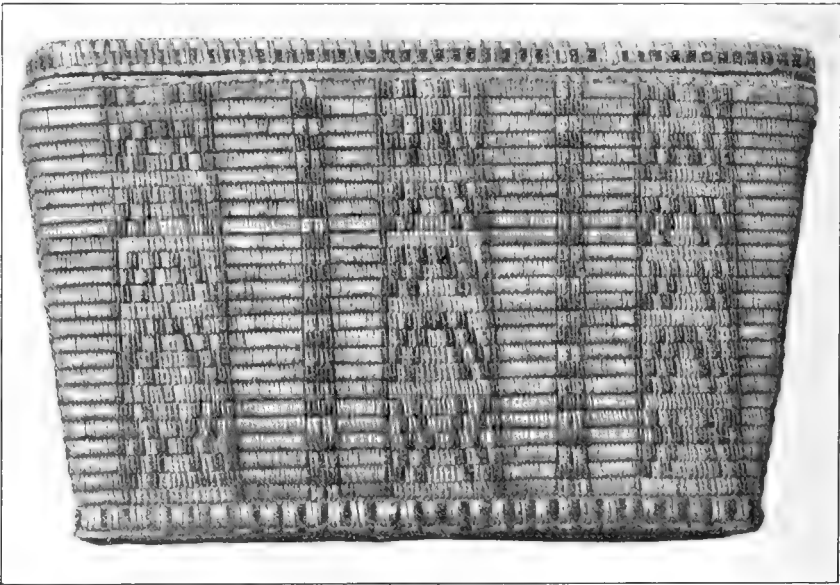


e

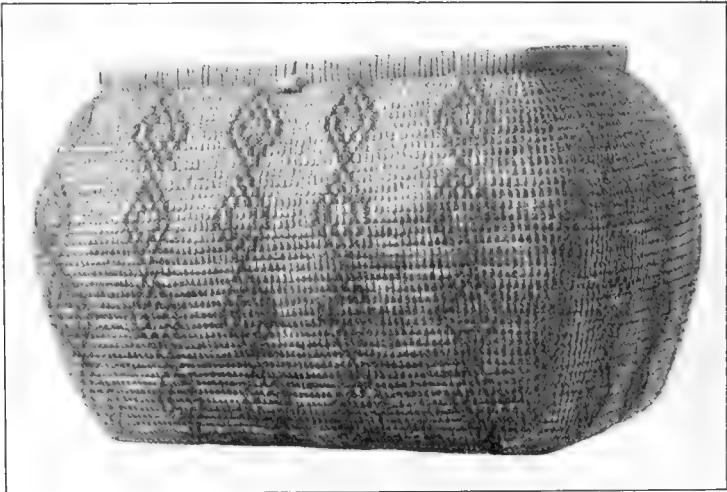
THOMPSON AND LILLOOET BASKETS



a



b



c

THOMPSON AND LILLOOET BASKETS

PLATE 15

- a*, Lillooet. U.S.N.M. 217466. Trunk. Design: "Arrowheads and dentalia," "Fly"
(Utā'mqt)
b, Thompson. A.M.N.H. 16-8839. Trunk
c, Port Douglas. A.M.N.H. 16-8838. Trunk

REFERENCES TO PLATE

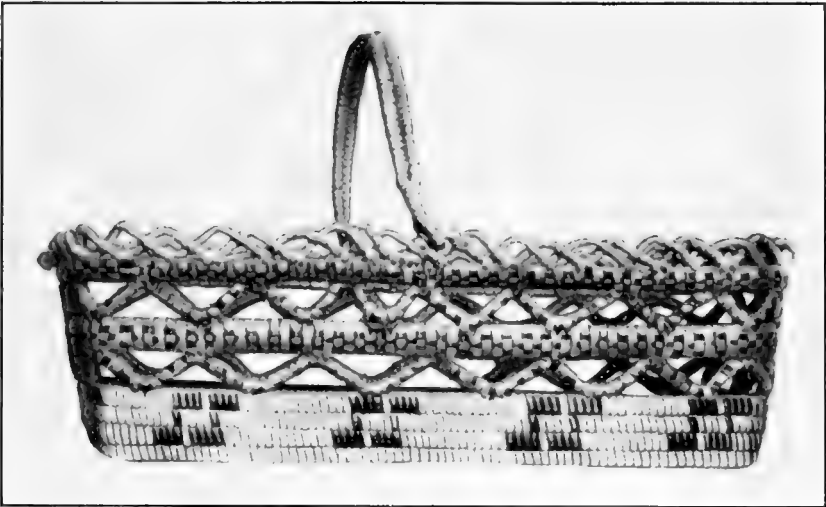
- a*, p. 205. Storage basket
p. 239. Storage basket with vertical stripes as decoration
p. 242. Lillooet basket with vertical stripes
b, p. 205. Storage basket
p. 239. Storage basket with vertical stripes as decoration
p. 242. Thompson basket with vertical stripes
c, p. 205. Storage basket
p. 239. Vertical arrangement of diamonds
p. 296. Detailed discussion of decoration
p. 300. Faulty spacing of design

PLATE 16

- a*, Lillooet. A.M.N.H. 16-5895. Modern basket. Design on isolated coils: "Little star," "Spot" (Nicola, Thompson), "Fly" (Utā'mqt). On the body of the basket: "Double hook," "Crook," "Angle" (Thompson, Spuzzum); "Hook," "Duck" (Lytton, Stlaḡa'iuḡa); "Part of a zigzag or snake" (Utā'mqt); "Leg," "Foot" (Gladwin, Lytton)
- b*, Thompson(?). Modern basket with central division

REFERENCES TO PLATE

- a*, p. 184. Basket with loop work on walls
p. 195. Basket with coiled handle
p. 208. Fancy basket of loop work
- b*, p. 210. Modern basket with partition

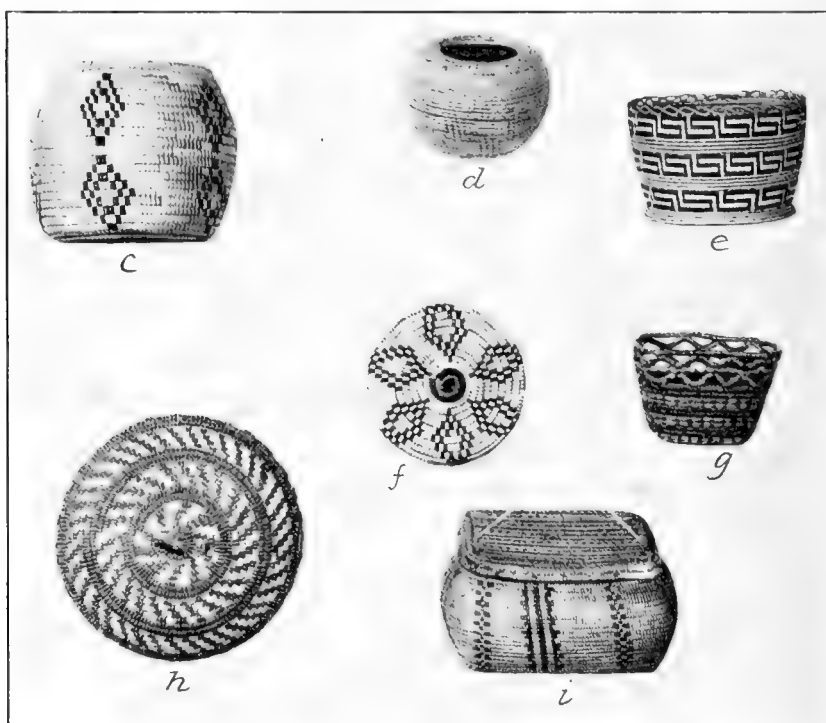
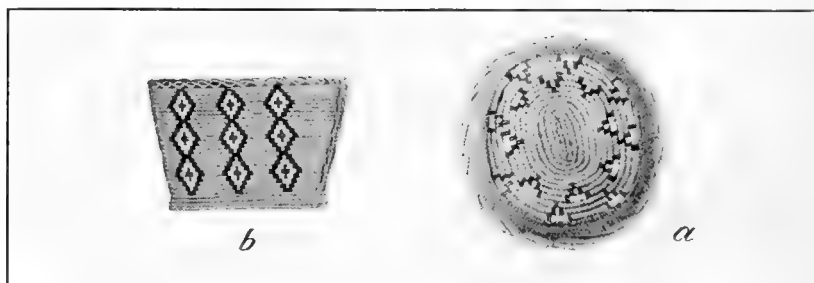


a



b

THOMPSON AND LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 17

[Victoria Museum, Ottawa]

- a*, Thompson. VI.M. 432. Design: "Mountains." (On sides, "Ducks on water")
- b*, Thompson. VI.M. 58. Design: "Arrowheads with stars inside"
- c*, Lillooet. VI.O. 10. (Lid *see f*)
- d*, Lillooet. VI.O. 12
- e*, Thompson. VI.M. 49. Design: "Zigzag," "Step"
- f*, Lillooet. VI.O. 10. Lid to *c*
- g*, Thompson or Lillooet. VI.M. 87. Modern basket
- h*, Thompson. VI.M. 65. Design: "Rib"
- i*, Lillooet. VI.O. 11

REFERENCES TO PLATE

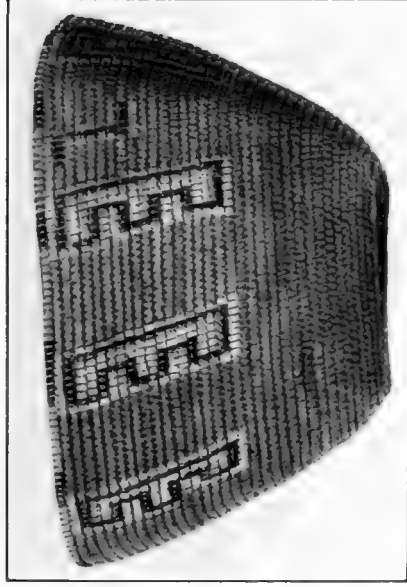
- a*, p. 208. Fancy basket with looped rim
- b*, p. 253. Diamonds outlined in black
- c*, p. 253. Checkered diamond
- d*, p. 204. Nut-shaped basket
- e*, p. 208. Fancy basket with looped rim
- f*, p. 229. Regular arrangement of design
- p. 253. Distorted checkered diamonds
- g*, p. 208. Fancy basket with loop work
- h*, p. 245. Diagonal decoration on tray
- i*, p. 205. Storage basket

PLATE 18

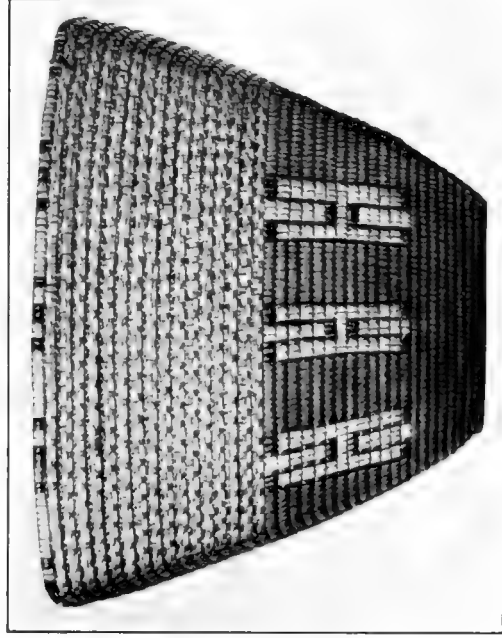
- a*, Lillooet. A.M.N.H. 16-5911. The main design: "Notch," "Mouth," "Zigzag," "Caterpillar." The filler: "Leg," "Foot," "Hook," "Bent ends"
- b*, Lillooet. A.M.N.H. 16.1-501. Basket with lid decorated in beading. Design: "Snakes" (Lytton); "Rattlesnake"
- c*, Lillooet. U.P.M. (N.A.) 1763. Burden basket, side decorated with beading
- d*, Thompson. A.M.N.H. 16.1-450. Design: "Pack strap"

REFERENCES TO PLATE

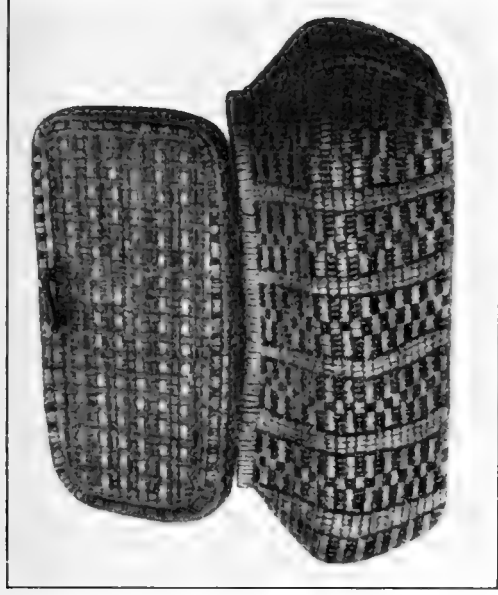
- a*, p. 230. Lillooet basket, upper part without imbrication
p. 234. Imbricated vertical and horizontal lines
p. 284. Basket with filler
- b*, p. 205. Storage basket
p. 224. Basket with beaded lid
- c*, p. 230. Lillooet basket with one beaded side
p. 239. Lillooet basket with stripes used as droppers
p. 263. Lillooet basket with beading
- d*, p. 232. Single field with design on unimbricated background
p. 268. Basket illustrating treatment of zigzag at corner



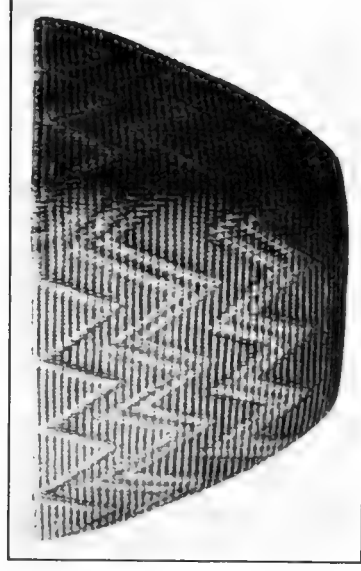
a



c

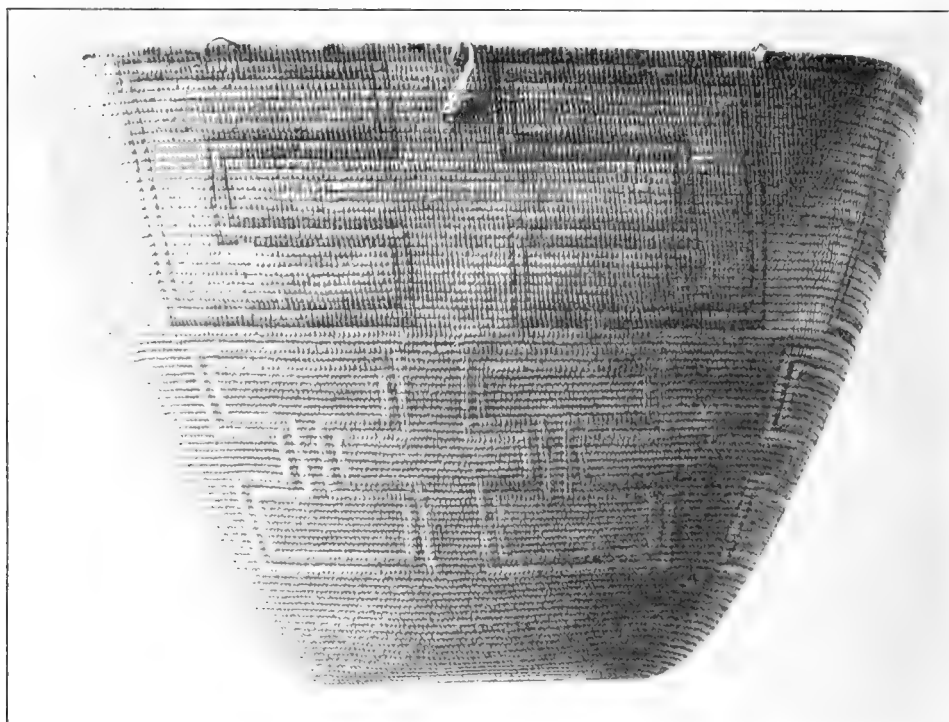


b

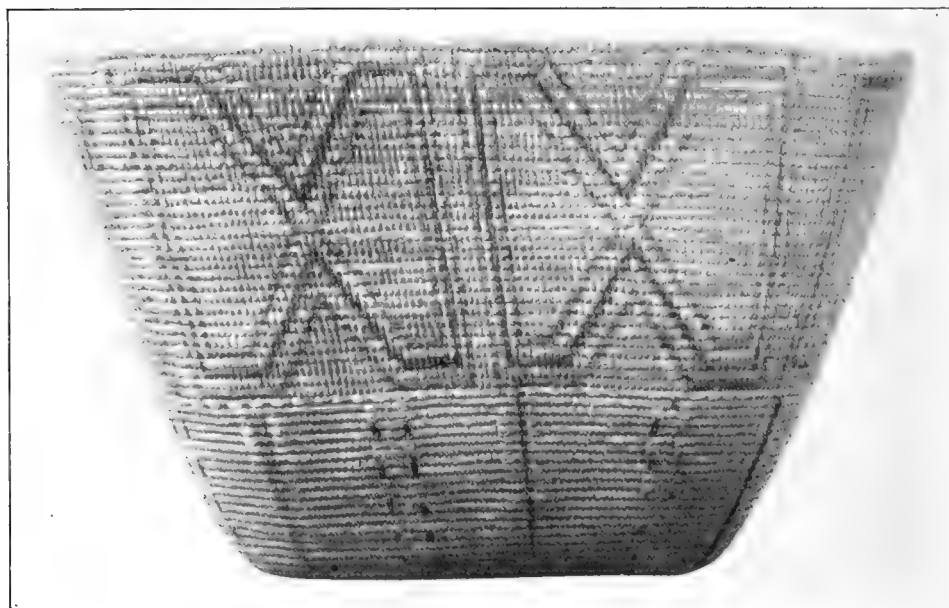


d

THOMPSON AND LILLOOET BASKETS



11



6

LILLOOET BASKETS

PLATE 19

- a*, Fort Douglas. A.M.N.H. 16-8831. Basket decorated with large single design. Design: Above, "Head"; below, "Mouth"
b, Lillooet. A.M.N.H. 16.1-492

REFERENCES TO PLATE

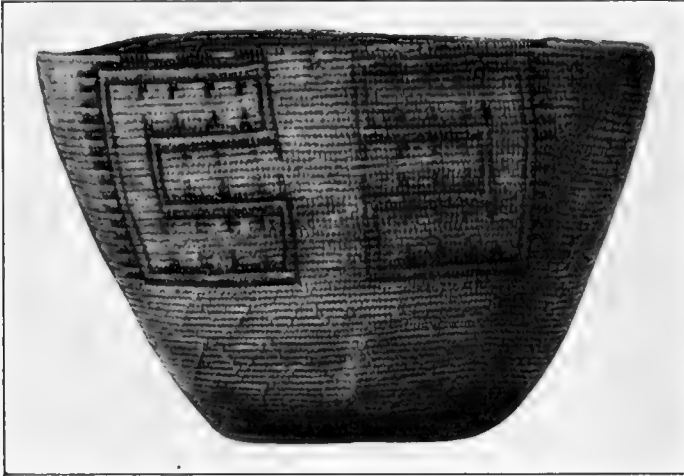
- a*, *b*, p. 231. Basket with design field divided into two sections
a, p. 384. Design divided in center by an undecorated field

PLATE 20

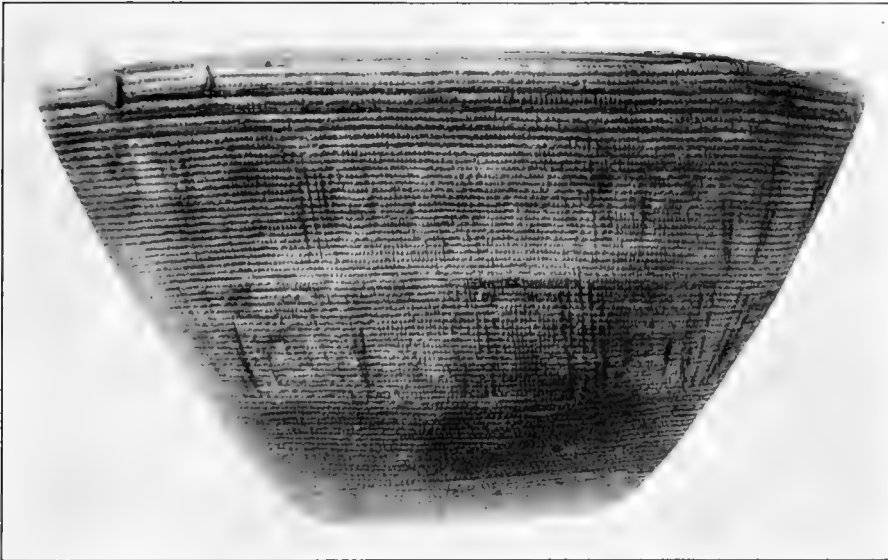
- a*, Lillooet. U.S.N.M. 217432. Basket decorated with large single design; above, "Head"
b, Lillooet. U.S.N.M. 217424

REFERENCES TO PLATE

- a*, p. 231. Lillooet basket with design field divided in two sections
p. 242. Head design
p. 384. Design divided in center by an undecorated field
b, p. 231. Lillooet basket with design field divided in two sections

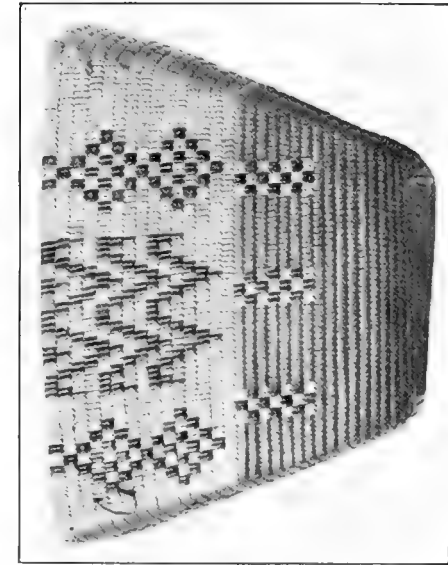


a

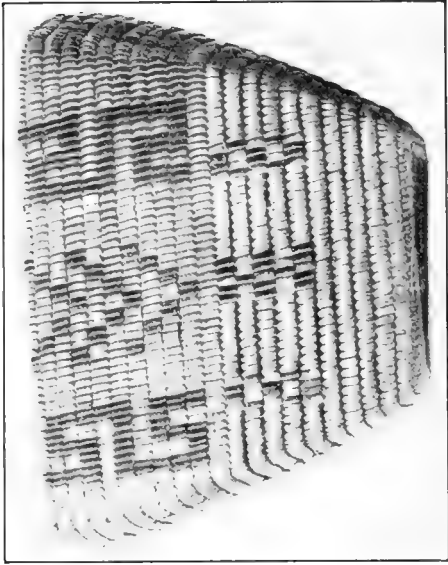


b

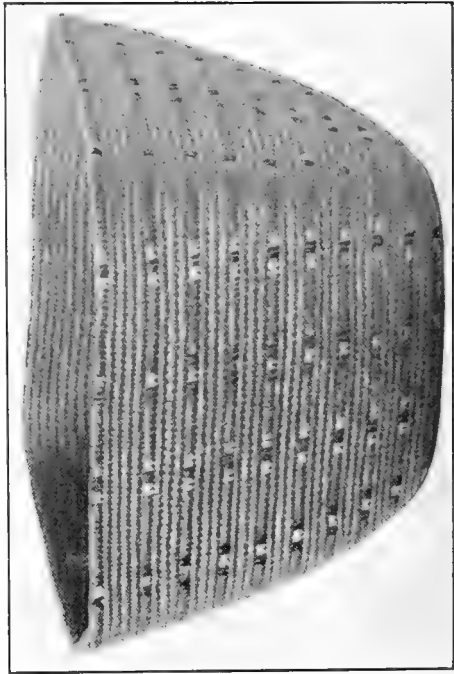
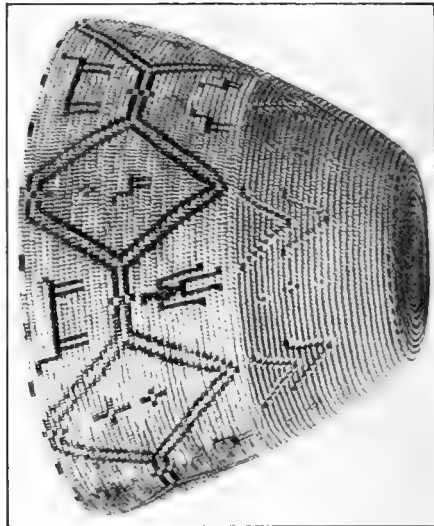
LILLOOET BASKETS



a



b



c

PLATE 21

- a*, Harrison Lake. A.M.N.H. 16.1-509. Design: In center, "Flying bird," "Necklace;" on either side, "Indian rice." The droppers, "Snake," "Fly"
- b*, Harrison Lake. A.M.N.H. 16.1-520
- c*, Lillooet. A.M.N.H. 16-6931. Design: Upper field, "Variation of grave box," "Mesh," "Lakes with ducks," "Snare with animals," "Men," "Flies;" lower field, "Flying geese," "Flying bird," "Swallow," "Necklace"
- d*, Thompson. A.M.N.H. 16.1-462

REFERENCES TO PLATE

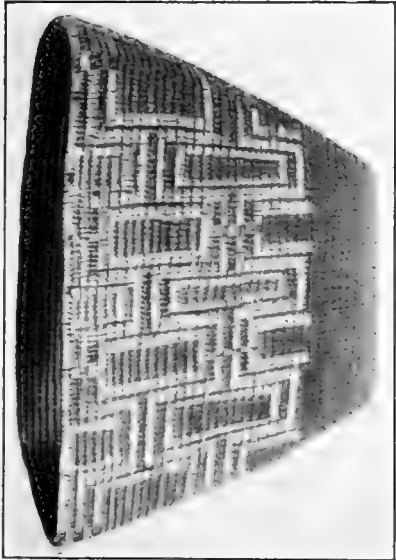
- a, b*, p. 231. Design arrangement in two fields, the upper one imbricated
- a*, p. 253. Chevrons interpreted as flying birds
- b*, p. 253. Lillooet basket with chevron designs
- c*, p. 231. Lillooet basket with design divided into two fields
- p. 254. Lillooet basket with large diamonds
- p. 255. Realistic design
- d*, p. 239. Horizontal line called by some rectangles divided into three sections
- p. 250. Rectangles divided in sections of different colors
- p. 262. Horizontal band running around the basket

PLATE 22

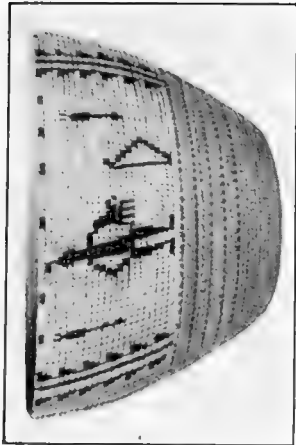
- a*, Thompson. U.S.N.M. 217453. Design: "Notch," "Mouth," "Variation of grave box"
b, Lillooet. A.M.N.H. 16-6933. Design: "Ladder" (Lytton). Between the ladders, "Buck deer,"
"Flies," "Grouse," or "Ducks," "A bow and two arrows," "Man with outstretched hand."
See Plate 76
c, Lillooet. Lower field with beading
d, Thompson. A.M.N.H. 16-4612. Design: "Twisting" (Coldwater, Utā'mqt, Lytton); "Fish-
net" (Utā'mqt, Lytton, Spences Bridge); "Deer net" (Thompson, Gladwin, Spences Bridge,
Nicola); "Grave box" (Coldwater); "Tumpline," "Pack strap"

REFERENCES TO PLATE

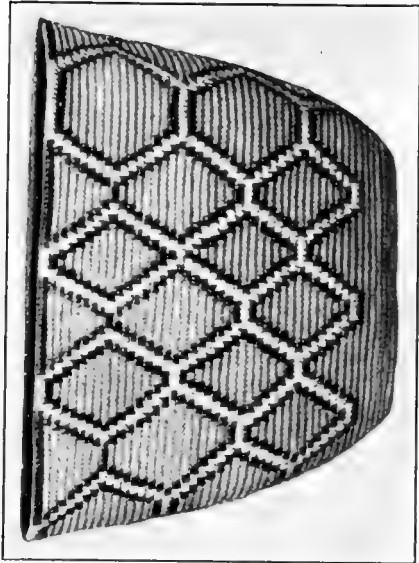
- a*, p. 231. Basket with decorated field covering three-quarters of entire surface
b, pp. 255, 256. Realistic designs
c, p. 234. Imbricated zigzag
d, p. 232. Design on unimbricated background
p. 254. Diamond designs



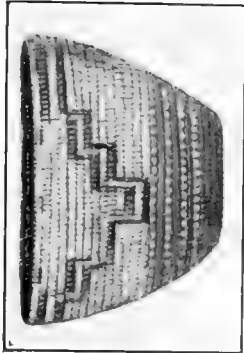
a



b

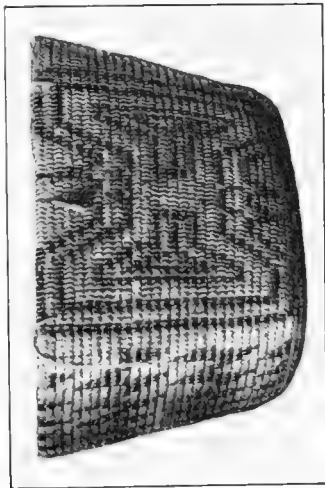
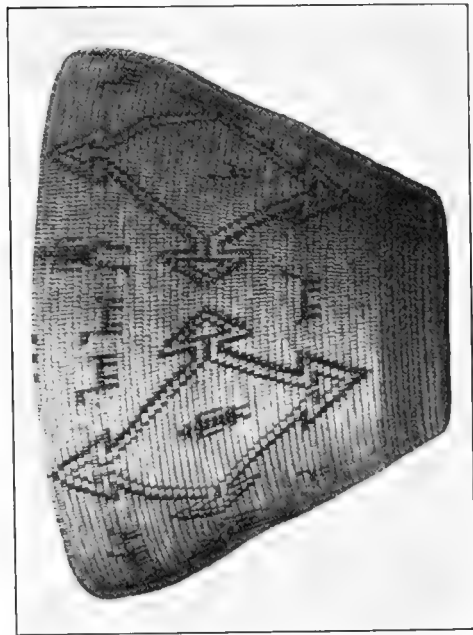


d



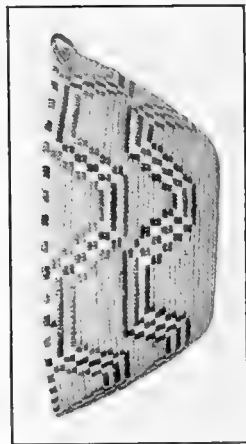
c

THOMPSON AND LILLOOET BASKETS

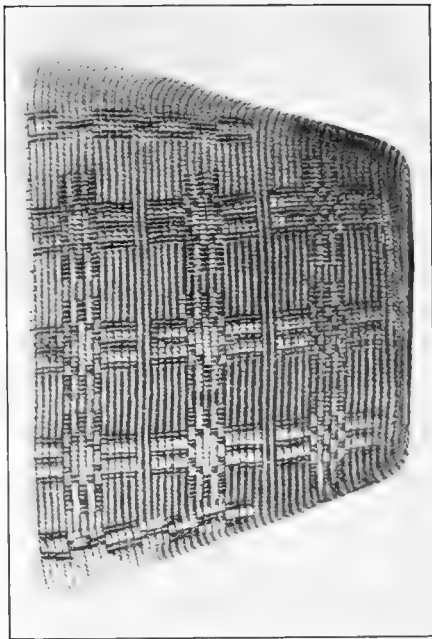


a

b



c



d

THOMPSON AND LILLOOET BASKETS

PLATE 23

- a*, Lillooet. A.M.N.H. 16-6929. The design is not made by the Thompson, but they call it "Variety of arrowhead" (Coldwater), "Necklace," "Men and dogs." The two-legged animals were also intended to be dogs, but there was not room enough to admit of complete figures. The Lillooet interpret the pattern as "Arrowhead" with figures of "Men," "Dogs," and "Ducks"
- b*, U.P.M. (N.A.) 1774
- c*, A.M.N.H. 16-4643
- d*, Thompson. A.M.N.H. 16.1-441. Design: "Star"

REFERENCES TO PLATE

- a*, p. 232. Imbrication except on small field near bottom
p. 255. Realistic design
- b*, p. 233. Basket with imbrication of the whole wall
- c*, p. 234. Imbricated zigzag
- d*, p. 232. Unimbricated basket with imbricated design
p. 284. Basket with filler

PLATE 24

- a*, Thompson. A.M.N.H. 16-8001. Design: "Arrow points" (Spuzzum); "Necklace," "Bow snake," "Bear foot" (Utā'mqt). The band in the middle: "Necklace of quills"
- b*, Thompson. A.M.N.H. 16-4607. Design: "Butterfly" (Lytton); "Variation of a little crow pattern" (Lytton, Stlaḡa'iuḡ); "Arrow notch" (Thompson, Coldwater); "Flying goose" (Thompson, Nicola); "Variation of necklace of dentalia and beads" (Thompson, Spences Bridge, Gladwin); "Mountain sheep" (?)
- c*, Thompson. A.M.N.H. 16-4638A. Design: "Arrowhead" (?)
- d*, Thompson. A.M.N.H. 16-8732. Design: "Arrowhead," "Beaver"
- e*, Lilloet. A.M.N.H. 16-9874. Design: "Snake track," "Snake," "Caterpillar." The design in the center, "Fly" (Utā'mqt)
- f*, Lilloet. A.M.N.H. 16-6939. Design, according to the Lilloet: "Trees"
- g*, Thompson basket. A.M.N.H. 16-8835, Fraser River Division
- h*, Field Museum 109263.

REFERENCES TO PLATE

- a*, p. 231. Design field divided into three sections with narrow middle band
p. 268. Treatment of zigzag at corner
- b*, p. 232. Designs on unimbricated background
p. 253. Chevrons interpreted as flying birds
- c*, p. 232. Design arranged in two fields on unimbricated background
p. 268. Treatment of zigzag at corner
- d*, p. 231. Design arrangement: central field imbricated, upper and lower imbrication on plain background
p. 268. Treatment of zigzag at corner
- e*, p. 233. Lilloet basket with vertical stripes
- f*, p. 255. Realistic design representing flower or tree
- g*, p. 233. Thompson basket with vertical stripes
p. 282. Displacement of stripes and filler
- h*, p. 250. Rectangles in checker formation



THOMPSON AND LILLOOET BASKETS



THOMPSON BASKETS

PLATE 25

- a*, Thompson. A.M.N.H. 16-4638. Design: "Cross" (Utā'mqt, Coldwater); "Star" (Spuzzum, Spences Bridge, Coldwater, Nicola, Lytton, Thompson); "Morning star" (Spences Bridge, Nicola)
b, Thompson. U.S.N.M. 222587. Design: "Indian rice" (Lytton, Nicola)
c, Thompson. A.M.N.H. 16-1043
d, Thompson

REFERENCES TO PLATE

- a*, p. 240. Diagonal distribution of design
p. 240. All-over distribution of design
b, p. 240. All-over distribution of design
p. 253. Checker diamonds outlined in black
c, p. 239. Vertical arrangement of design
d, p. 239. Vertical arrangement of design
p. 240. All-over distribution of design
p. 251. Triangles

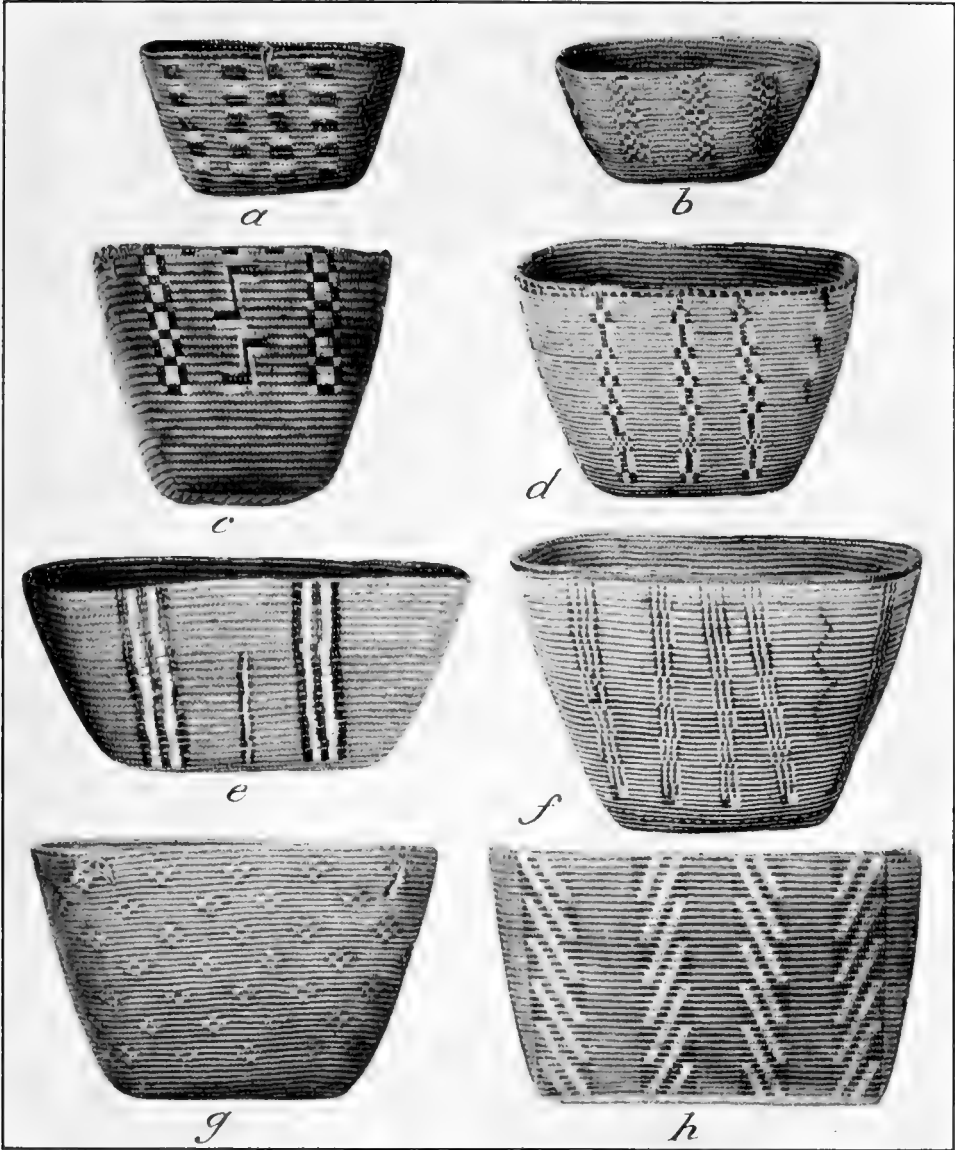
PLATE 26

[Victoria Museum, Ottawa]

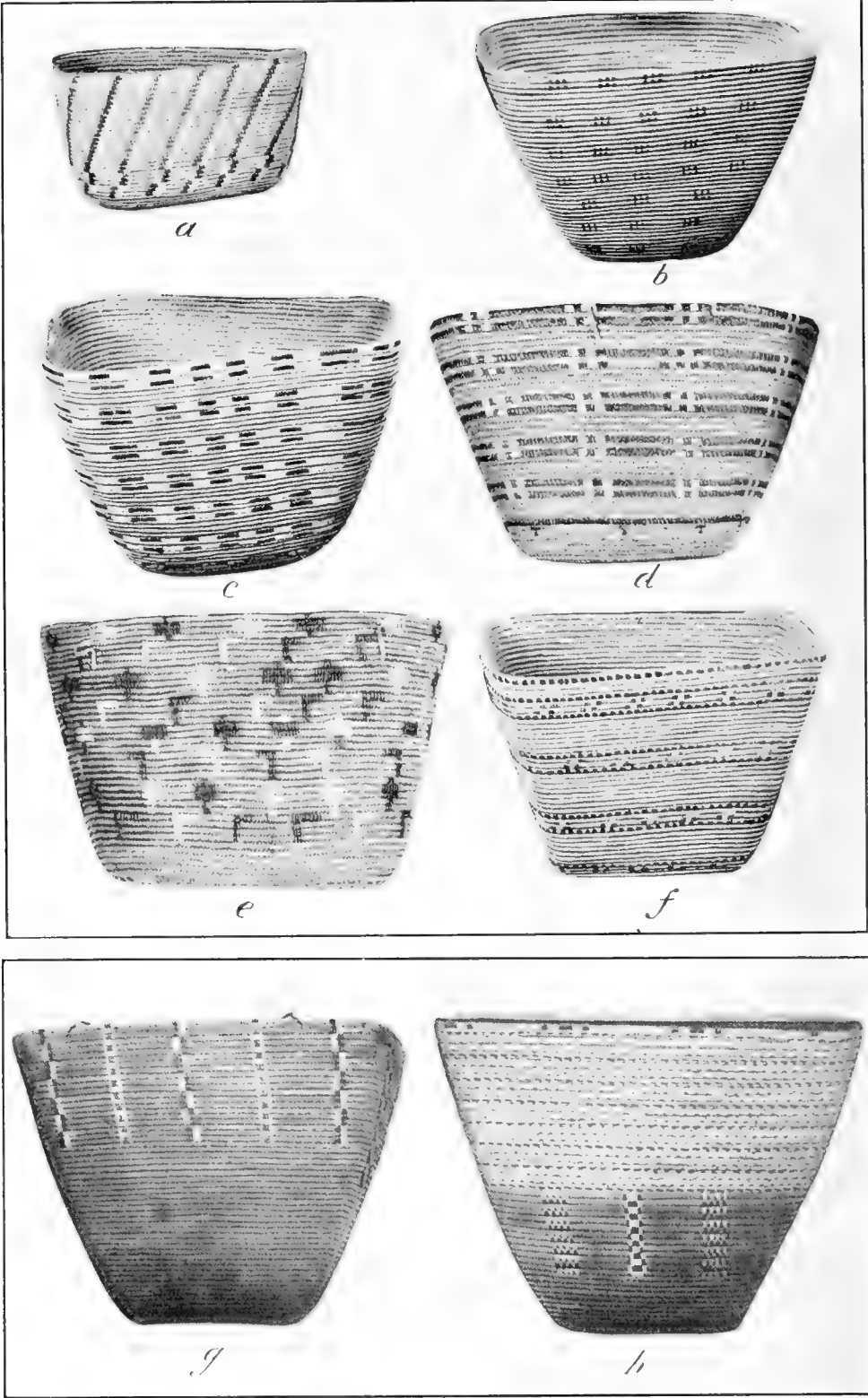
- a*, Thompson. VI.M. 288. Design: "Snake," "Bullsnake"
- b*, Thompson. VI.M. 289. Design: "Snake," "Fly," or "Little spot" (Lower Thompson)
- c*, Lillooet. VI.O. 7
- d*, Thompson. VI.M. 282. Design: "Snake;" first filler, "Head;" second filler, "Tail;" third filler, "Half arrowhead"
- e*, Thompson. VI.M. 307. Design: "Striped snake"
- f*, Thompson. VI.M. 278. Design: On the stripes, "Dentalia;" on the filler, "Caterpillar"
- g*, Lillooet. VI.O. 4
- h*, Lillooet. VI.O. 3

REFERENCES TO PLATE

- a*, p. 239. Vertical arrangement of design
 - p. 250. Rectangular design in vertical stripe
 - p. 284. Filler
- b*, p. 239. Vertical arrangement of design
- c*, p. 239. Vertical arrangement of design
 - p. 249. Squares consisting of six stitches and four coils
- d*, p. 239. Vertical arrangement of design
 - p. 284. Filler
- e*, p. 239. Vertical arrangement of design
- f*, p. 239. Vertical arrangement of design
 - p. 250. Vertical stripe consisting of rectangles
 - p. 284. Filler
- g*, p. 240. All-over distribution of design
- h*, p. 205. Storage basket
 - p. 239. Vertical arrangement of design
 - p. 243. Stripe with long diagonals



THOMPSON AND LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 27

[a-f, Victoria Museum]

- a, Thompson. VI.M. 283. Design: "Striped snake"
b, Thompson. VI.M. 272. Design: "Spot"
c, Thompson. VI.M. 276. Design: "Necklace"
d, Thompson. VI.M. 348. Design: "Necklace," "Beads and copper tubes," below, "String of teeth"
e, Thompson. VI.M. 327. Design: "Cross," "Star," "Flying bird." The elbow or angle is called
"Single hook," "Foot," "Leg," "Pipe"
f, Thompson. VI.M. 277. Design: "Twisted," "Rope," "Necklace," "Embroidery"
g, Lillooet. A.M.N.H. 16-5903. Beaded basket
h, Lillooet. A.M.N.H. 16-5902. Beaded basket

REFERENCES TO PLATE

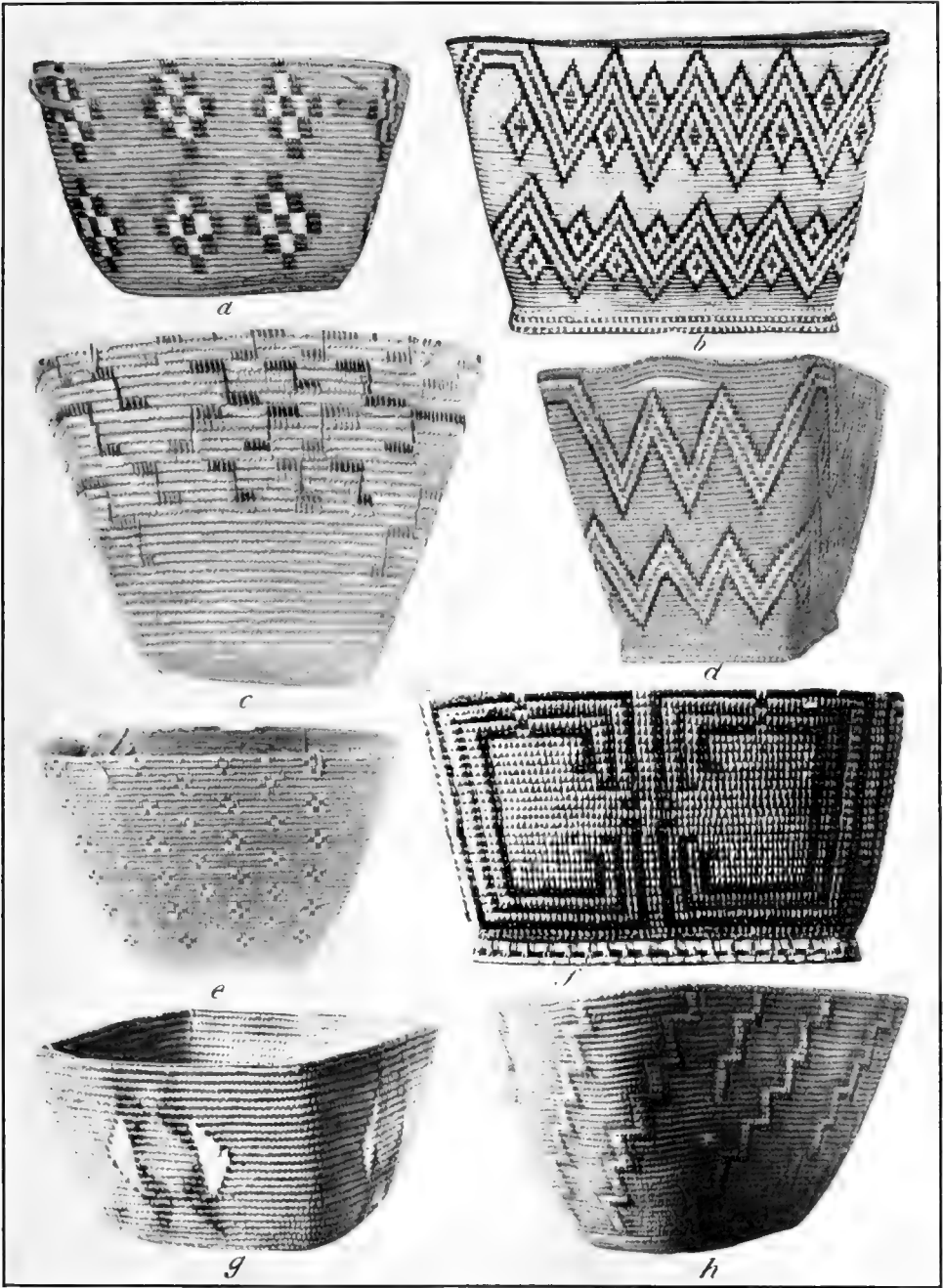
- a, p. 245. Diagonal stripe
b, p. 250. Small rectangles of varied colors
c, pp. 250, 262. Horizontal bands with rectangles
d, p. 234. Imbricated horizontal lines
pp. 240, 250, 262. Horizontal bands with rectangles of varied colors
e, p. 240. All-over design in diagonal arrangement
f, p. 234. Horizontal lines in beading
p. 262. Horizontal distribution of design
g, p. 234. Lillooet basket with vertical imbricated design and horizontal beading
h, p. 230. Lillooet basket with one beaded side

PLATE 28

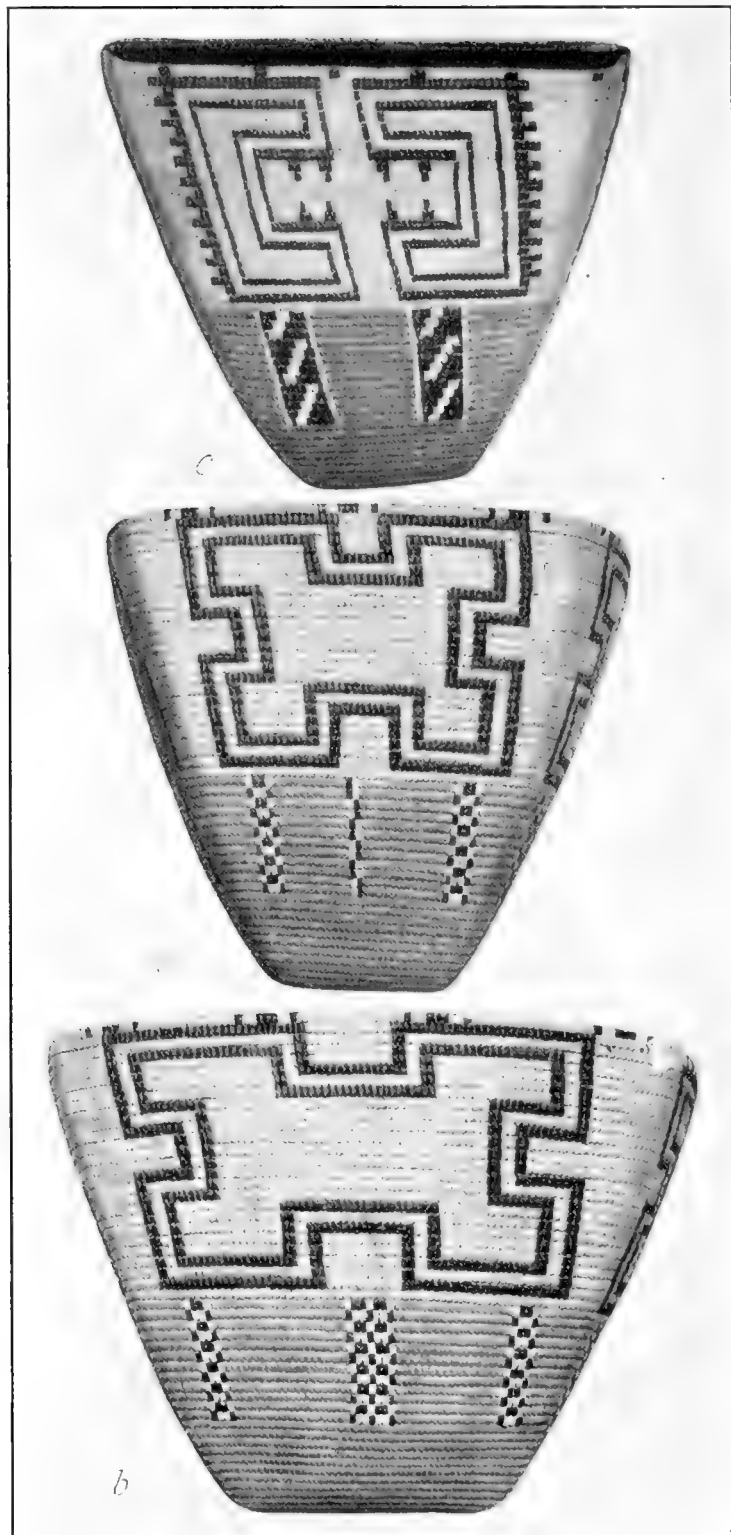
- a*, Thompson. A.M.N.H. 16-4608. Design: "Stars"
b, Thompson. A.M.N.H. 16-4637. Design: "Arrowhead," "Arrow points" (Coldwater), "Pack strap" (Spuzzum), "Zigzag" (Thompson), "Deer fence with snares" (Gladwin, Thompson Siding). (Long side of *d*)
c, Thompson. A.M.N.H. 16-8824. Design: "Leg," "Foot," "Double hook," "Net" (Thompson, Nicola)
d, Thompson. A.M.N.H. 16-4637. Design: "Sharp points," "Zigzag" (Thompson), "Arrow points" (Utā'mqt, Lytton). (Short side of *b*)
e, Thompson. U.S.N.M. 217438. Design: "Flower" (Buttercup, Larkspur), "Star" (Nicola), "Fly" (Utā'mqt), "Part of a long fly design" (Spuzzum)
f, Thompson. A.M.N.H. 16-4606
g, Thompson
h, Thompson. A.M.N.H. 16.1-449

REFERENCES TO PLATE

- a*, p. 240. Horizontal arrangement of design
b, p. 254. Diamonds used as designs
 p. 268. Treatment of zigzag at corner
c, p. 240. Diagonal arrangement of design
d, p. 240. Horizontal arrangement of zigzag
 p. 268. Treatment of zigzag at corner
e, p. 240. All-over distribution of design
f, p. 241. Large single design
g, p. 241. Large design on unimbricated background
 p. 262. Adjustment of figure to increasing diameter of basket
h, p. 240. Diagonal arrangement of design



THOMPSON BASKETS



LILLOOET BASKETS

PLATE 29

- a, b*, Lillooet. A.M.N.H. 16-5907. Long and short sides. Design: According to the Lillooet, "Notch," "Mouths in a circle," "Intestine and flies," "Intestine and beads." The design is not made in exactly the same way by the Thompson. Their pattern is called "Mouth design carried around in a circle" (Coldwater), "Variety of Notch" (Thompson), "Caterpillar design made in a circle" (Thompson Siding). The design on the droppers is called "Fly" by the Spuzzum.
- c*, Lillooet. A.M.N.H. 16-5906. This design is not made by the Thompson, but they interpret it among the Coldwater as a "Variety of the mouth design." The Thompson band call the dropper pattern "Xanaxa'in." The Lillooet interpret the design as "Arrowhead," while the large pattern is the "Tooth." The whole design is known as the "Head and mouth with hair along the back of the head"

REFERENCES TO PLATE

- a*, p. 239. Lillooet basket with droppers
 p. 242. Intestine design
 p. 232. Adjustment of figure to increasing diameter of basket
b, p. 239. Lillooet basket with droppers
 p. 252. Adjustment of figure to increasing diameter of basket
c, p. 239. Lillooet basket with droppers
 p. 242. Head design
 p. 232. Adjustment of figure to increasing diameter of basket
 p. 384. Decorated field divided by undecorated central band

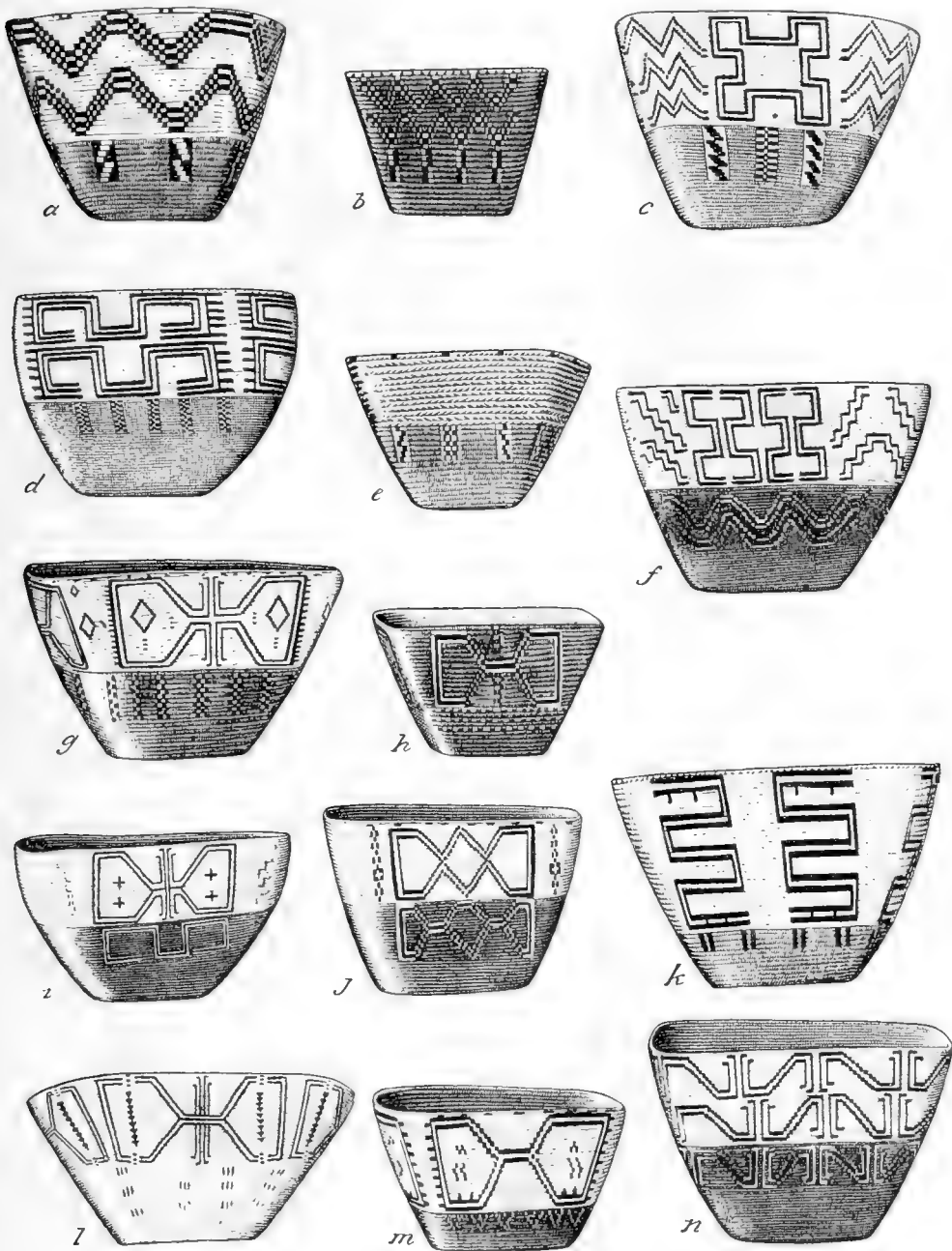
PLATE 30

[Field Museum]

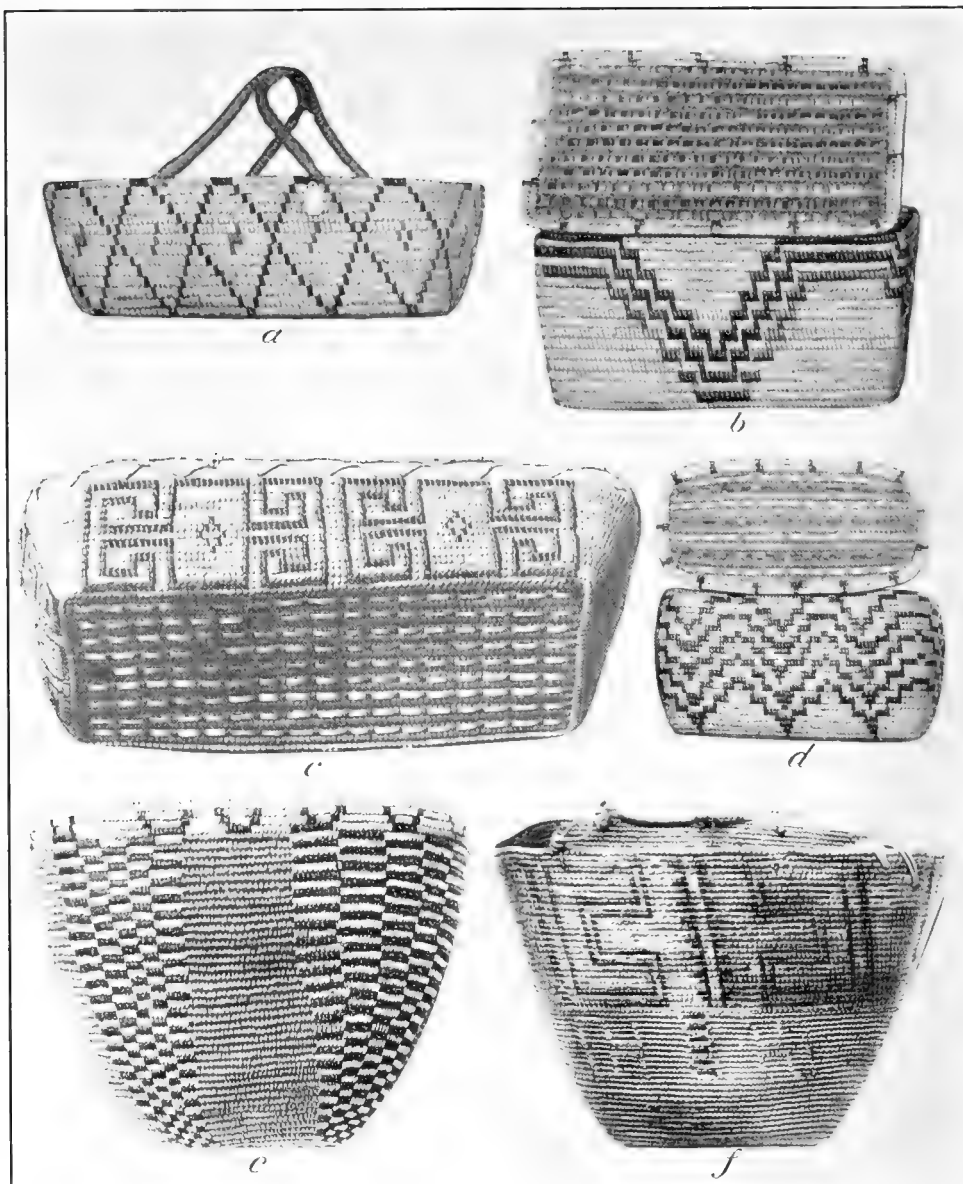
- a, Lillooet. 57909. Carrying basket. New. Splint foundation. Upper part with white imbricated groundwork, two zigzag horizontal bands of checkered pattern; each side with two droppers
- b, Lillooet. 57897. Carrying basket. Splint foundation. On three sides decorated, upper with horizontal zigzag in imbrication and droppers. Fourth side, five narrow droppers in black, white, and red
- c, Lillooet. 85540. Basket for berries (tsale), of coiled root formation. A little more than one-half imbricated above. Sides with design, corners with zigzag pattern. All in red and black cherry on white ground
- d, Lillooet. 57912. Carrying basket. Split-root foundation. Upper part with imbricated groundwork
- e, Lillooet. 57888. Carrying basket
- f, Lillooet. 85541. Basket for berries (tsale), of coiled root work. Design: A above, "Hand hammers;" below, "Mountains"
- g, Lillooet. 57895. Carrying basket. Split-root foundation. Upper half decorated with imbricated stitch, butterfly design
- h, Lillooet. 57896. Carrying basket. Splint foundation. Design: "Butterfly"
- i, Lillooet. 85538. Carrying basket. Design: "Butterfly and rows of animals"
- j, Lillooet. 85539. Carrying or berry basket. Slightly less than one-half imbricated above. Design: "Modified butterfly"
- k, Lillooet. 57933. Carrying basket.
- l, Lillooet. 85537. Carrying basket. Large upper half imbricated, "Butterfly" design. Imbricated droppers on lower half
- m, Lillooet. 85538. Berry basket. "Butterfly" ornamentation; below, "Arrowheads"
- n, Lillooet. 57902. Carrying basket. Split-root foundation

REFERENCES TO PLATE

- a-e, p. 239. Lillooet basket with droppers consisting of vertical lines
- f, p. 239. Lillooet basket, lower field decorated with large figures
- g, p. 239. Lillooet basket with droppers consisting of vertical lines
- h, p. 239. Lillooet basket with lower field decorated by horizontal beading
- i, p. 239. Lillooet basket, lower field decorated with large figures
- j, p. 239. Lillooet basket, lower field decorated with large figures
- k, p. 239. Lillooet basket with droppers consisting of vertical lines
- l, p. 239. Lillooet basket, lower field decorated with isolated lines
- m, p. 239. Lillooet basket, lower field decorated with triangles
- n, p. 239. Lillooet basket, lower field decorated with large figures



LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 31

- a*, Lillooet. A.M.N.H. 16-5898. Modern basket. Design, according to the Thompson: "Like a single design with a grave box" (Coldwater), "Net" (all other hands), "Part of a net" (Spuzzum), "Diamond pack-strap design" (Utá'mqt). According to the Lillooet it is "Arrow"
- b*, Lillooet. A.M.N.H. 16-5890. Storage basket. Design on lid, as interpreted by the Thompson: "Beads;" on the basket, "Necklace," "Variation of the flying bird design," "Zigzag," "Ladder" (Lytton, Gladwin). The Lillooet call the main design "Lightning"
- c*, Lillooet. A.M.N.H. 16-6940. Modern storage basket. According to the Lillooet the design belongs to the white man. It was copied from the border of a handkerchief
- d*, Lillooet. A.M.N.H. 16-5893. Modern storage basket. Design, according to the Thompson: "Variation of the snake track" (Coldwater); "Necklace" (Spences Bridge, Nicola); "Variation of the ladder" (Gladwin); "Zigzag." On the edge of the lid, "Arrowhead;" in the center, "Bead." According to the Lillooet the designs are "Lightning" and "Arrowhead"
- e*, Thompson. Burden basket
- f*, Lillooet. U.S.N.M. 217436. Burden basket. Design: "Head"

REFERENCES TO PLATE

- a*, p. 195. Basket with coiled handle
p. 254. Diamonds
- b*, p. 225. Beaded lid
p. 234. Imbricated diagonal lines
- c*, p. 225. Basket with beaded bottom
- d*, p. 225. Beaded lid
p. 234. Imbricated diagonals
- e*, p. 262. Adjustment of figure to increasing diameter of basket
- f*, p. 337. Method of adjustment of figure to upper field of Lillooet basket with unrelated droppers

PLATE 32

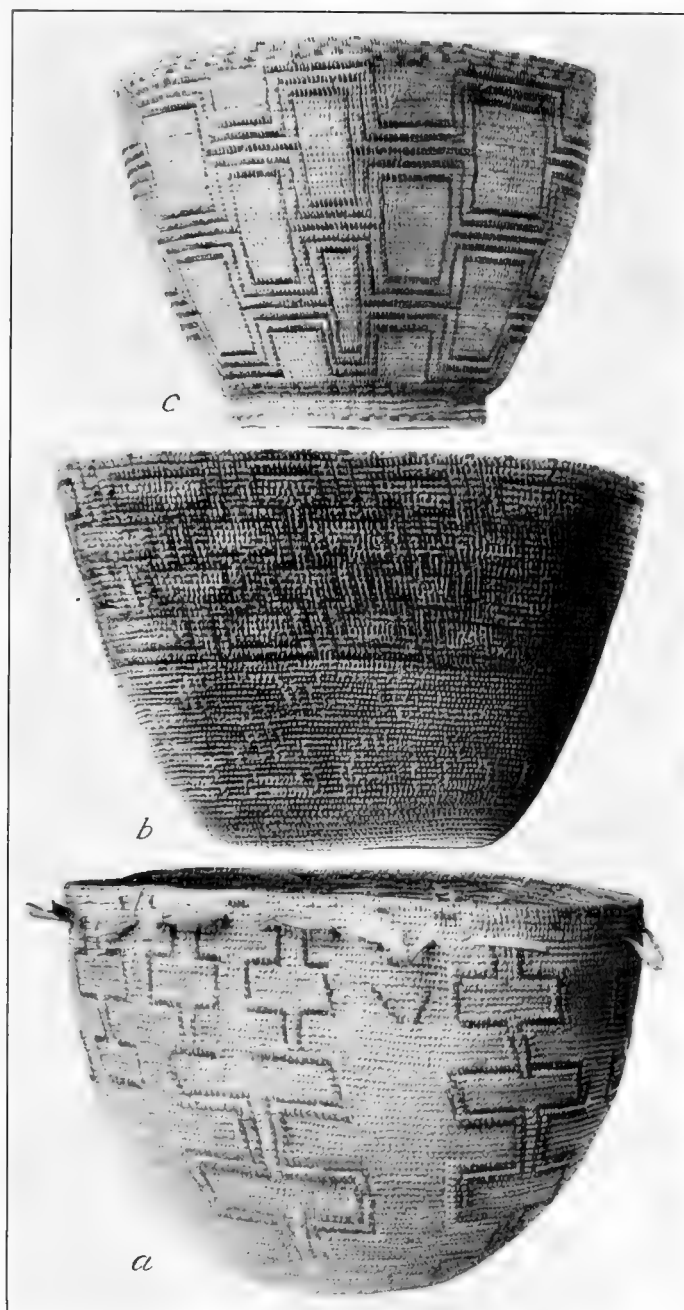
a, Thompson. U.S.N.M. 222032

b, Lytton or Lower Thompson. Design, according to Lytton: "Notch;" and Lower Thompson "Mouth"

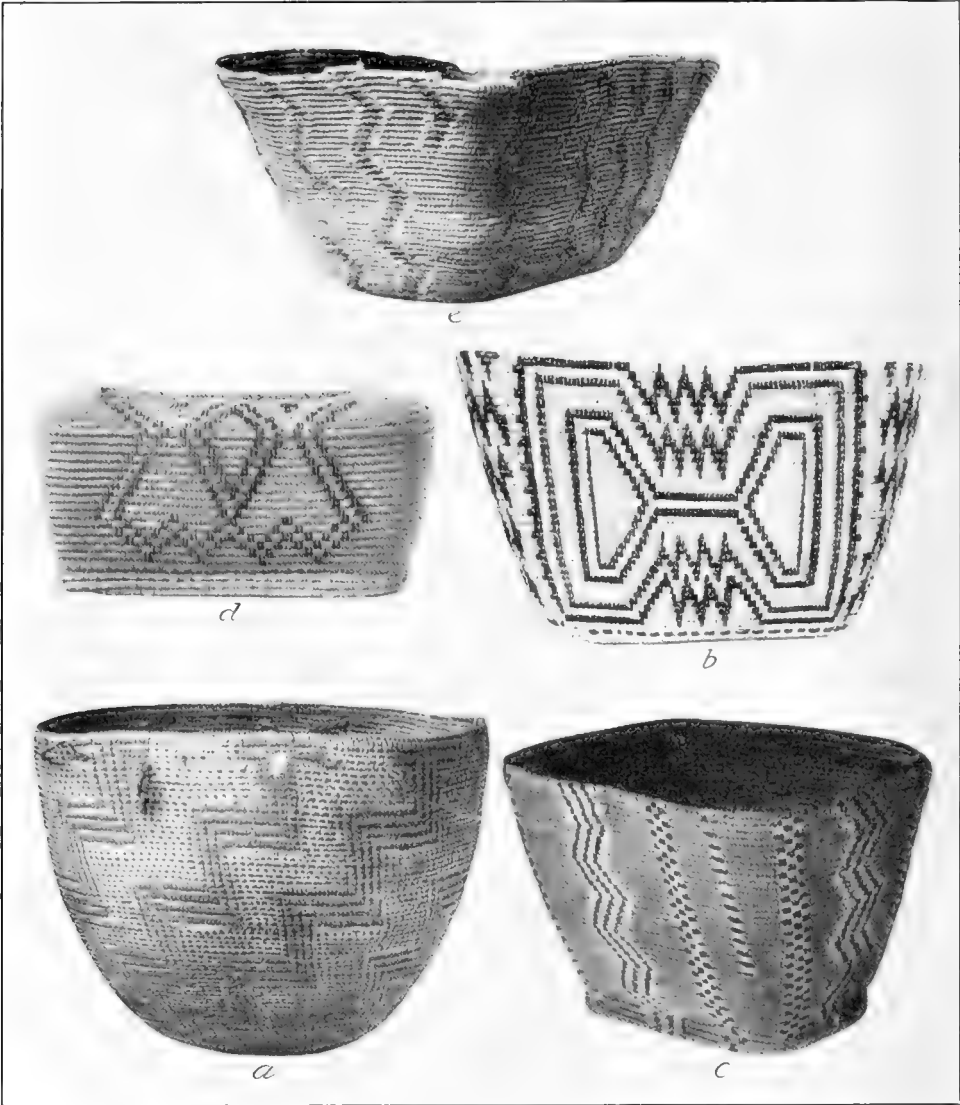
c, Thompson. A.M.N.H. 16-4623. Design: At rim, "Spot" (Coldwater); "Step," "Ladder" (Lytton); "Heaped up" (Nicola); "Embroidery" (Spences Bridge). The main design, "Variation of the grave box" (Utá'mqt, Coldwater, Spuzzum, Lytton, Thompson, Nicola). Also, "Lakes and creeks"

REFERENCE TO PLATE

a-c, p. 240. Large rectangular connected designs covering the whole wall or the upper part of the basket



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PLATE 33

- a*, Thompson. U.S.N.M. 219876
b, Thompson. A.M.N.H. 16-4613. Design: On ends, "Sxanema'ist" "fernlike plant with notched leaves" (Spuzzum); on the sides, "Leaves," "Hammer" (Spuzzum); "Variation of arrowhead" (Coldwater); "Butterfly mixed with leaves" (Spuzzum). The leaf design on the ends was an old blanket pattern
c, Thompson. U.S.N.M. 222585. Design: "Snake" (Thompson), "Pack strap," "Fly" (Utā'mqt)
d, Fort Douglas. A.M.N.H. 16.1-551. "Part of a design" (Utā'mqt), "Paint pouch" (Nicola)
e, Thompson. U.S.N.M. 216426

REFERENCES TO PLATE

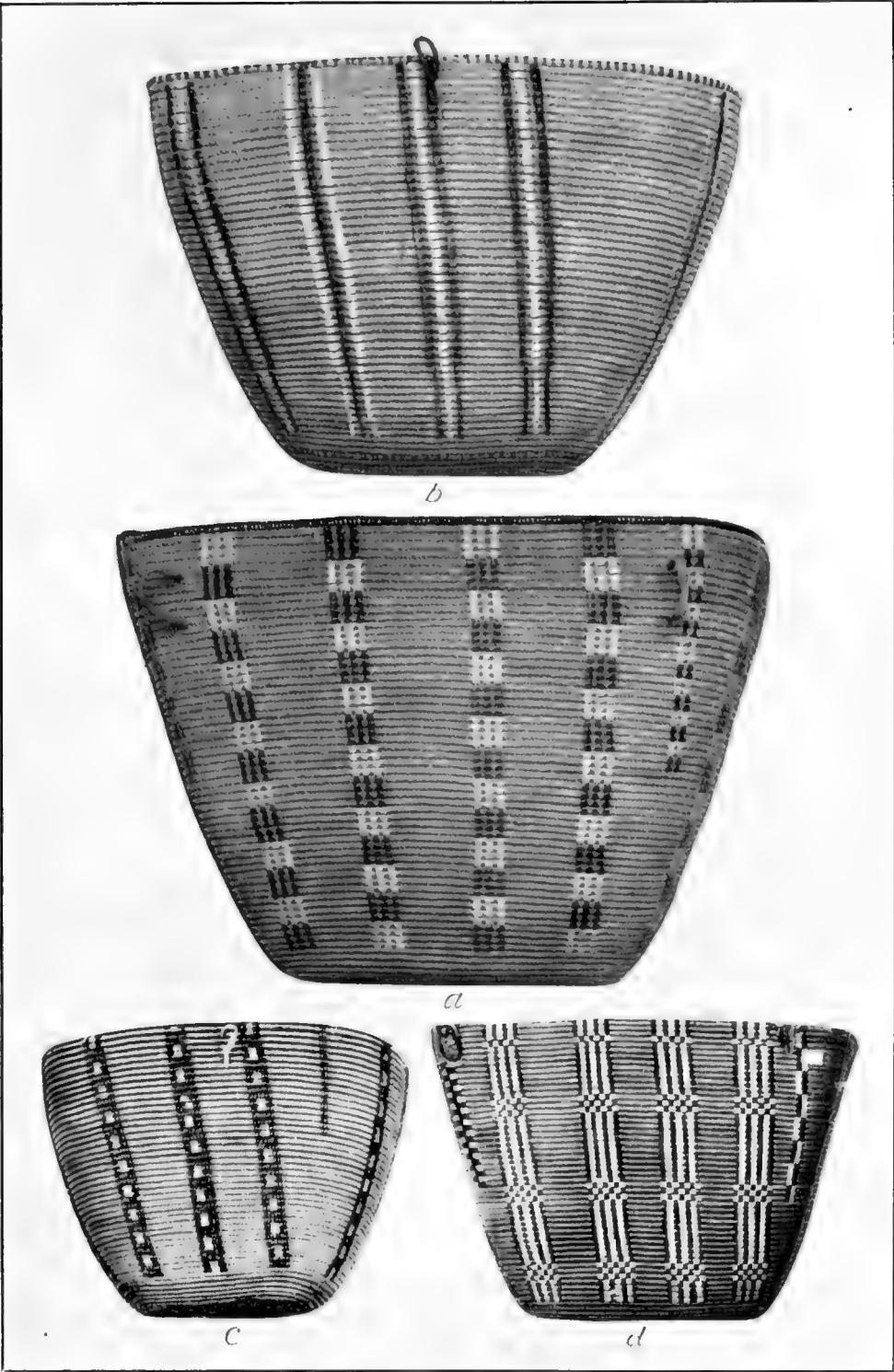
- a*, p. 240. Diagonal arrangement of design
b, p. 241. Large single design representing leaves
c, p. 243. Vertical stripe consisting of checks
p. 284. Filler
d, p. 241. Large single design on storage basket
e, p. 253. Vertical zigzag
p. 283. Filler

PLATE 34

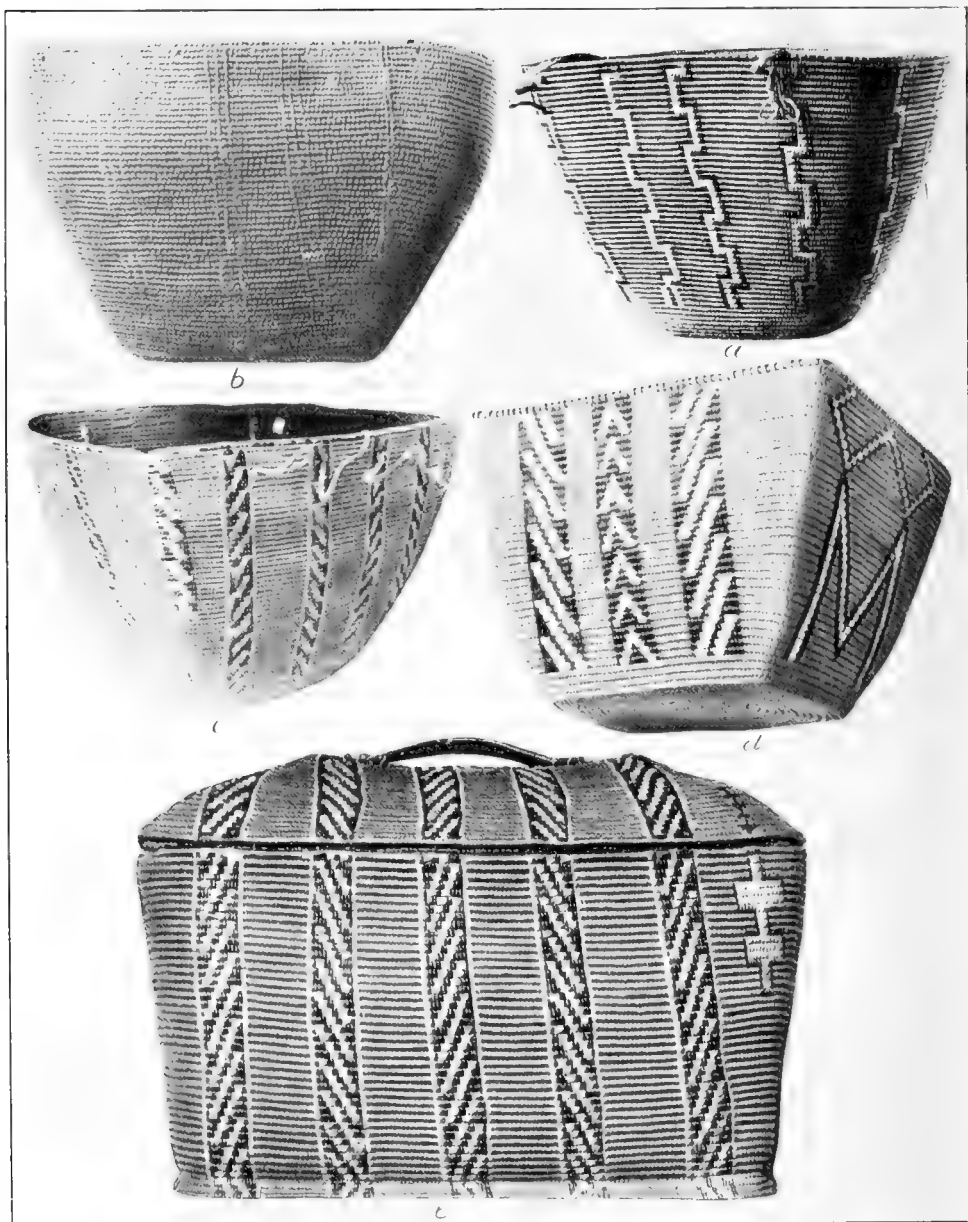
- a*, Thompson. A.M.N.H. 16-4603. Design: "Dentalia" (Spences Bridge, Lytton, Nicola, Thompson); "Necklace of dentalia and beads" (Thompson, Lytton, Nicola); "Standing" (Spuzzum). A name was once known among the Coldwater, but had been forgotten
- b*, Thompson. A.M.N.H. 16-1272. Design: "Stripe"
- c*, Thompson. Burden basket
- d*, Thompson. Burden basket

REFERENCES TO PLATE

- a*, p. 234. Vertical stripe divided into alternating squares
p. 243. Vertical stripe divided into alternating squares
p. 284. Filler
- b*, p. 234. Vertical stripe consisting of imbricated and unimbricated lines
p. 243. Vertical stripe consisting of imbricated and unimbricated lines
- c*, p. 234. Vertical stripe with small squares
p. 243. Vertical stripe with small squares
p. 249. Small squares
p. 284. Filler
- d*, p. 243. Vertical stripe consisting of black and white rectangles interrupted by checkerwork
p. 250. Vertical stripe consisting of black and white rectangles interrupted by checkerwork
p. 284. Filler with design different from main design
p. 284. Filler



THOMPSON BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 35

- a*, Thompson. A.M.N.H. 16-4610. Design: "Half of a mouth pattern" (Coldwater); "Notch," "Caterpillar" "Snake's tracks," "Mountain," "Teeth"
- b*, Lilloet. A.M.N.H. 16.1-488. Design: "Necklace," "Embroidery"
- c*, Thompson. U.S.N.M. 213535. Design: "Half arrowhead," "Dentalia," "Embroidery"
- d*, Thompson or Lilloet. Burden basket
- e*, U.P.M.(N.A.) 1772. Storage basket

REFERENCES TO PLATE

- a*, p. 234. Imbricated vertical and horizontal lines
- b*, p. 230. Decoration in vertical bands
- p. 234. Vertical imbricated lines
- p. 243. Design consisting of uninterrupted vertical imbricated lines
- c*, p. 243. Vertical stripe with diagonals
- p. 284. Filler
- d*, p. 243. Vertical stripe with diagonals and chevrons
- p. 253. Vertical stripe with diagonals and chevrons
- e*, p. 205. Storage basket
- p. 243. Vertical stripe with diagonals
- p. 284. Filler
- p. 298. Lid continuing design of walls
- p. 299. Lid continuing design of walls

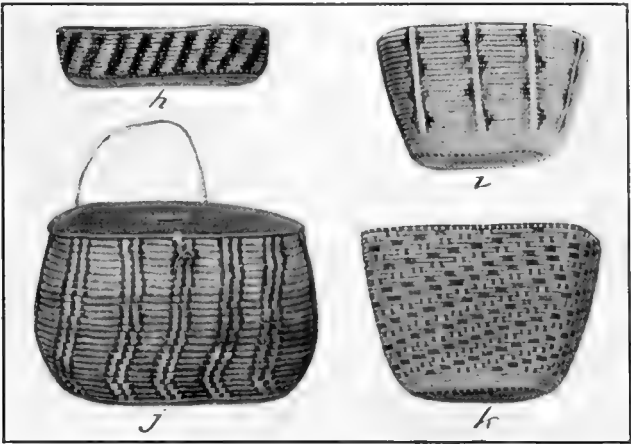
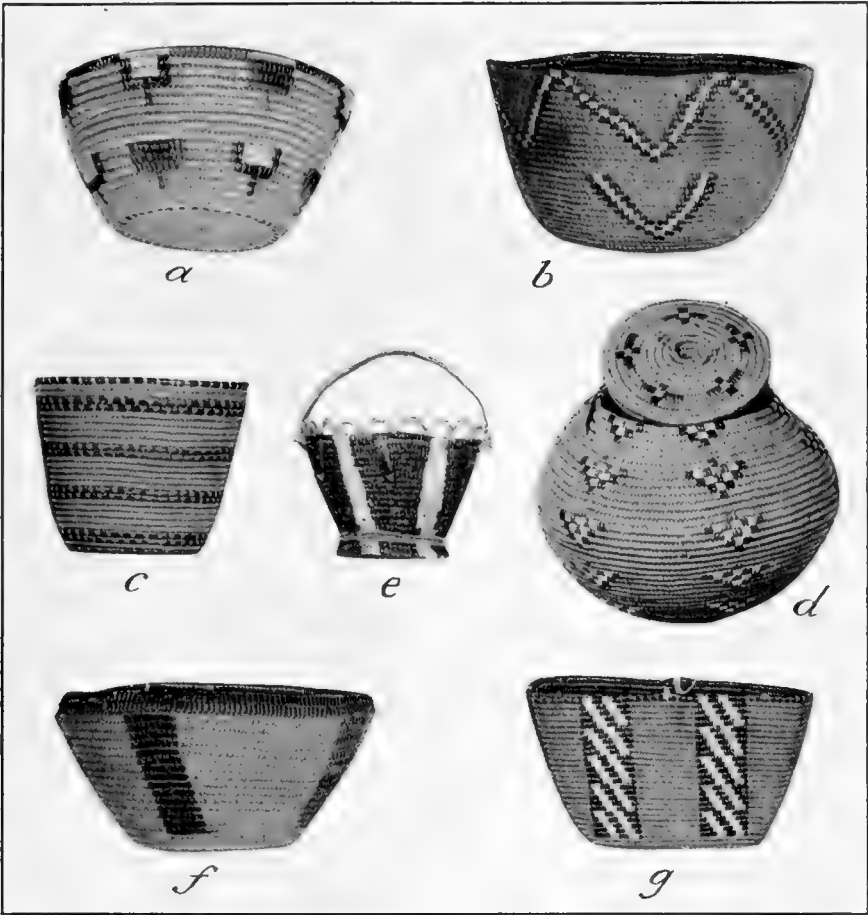
PLATE 36

[Victoria Museum, Ottawa]

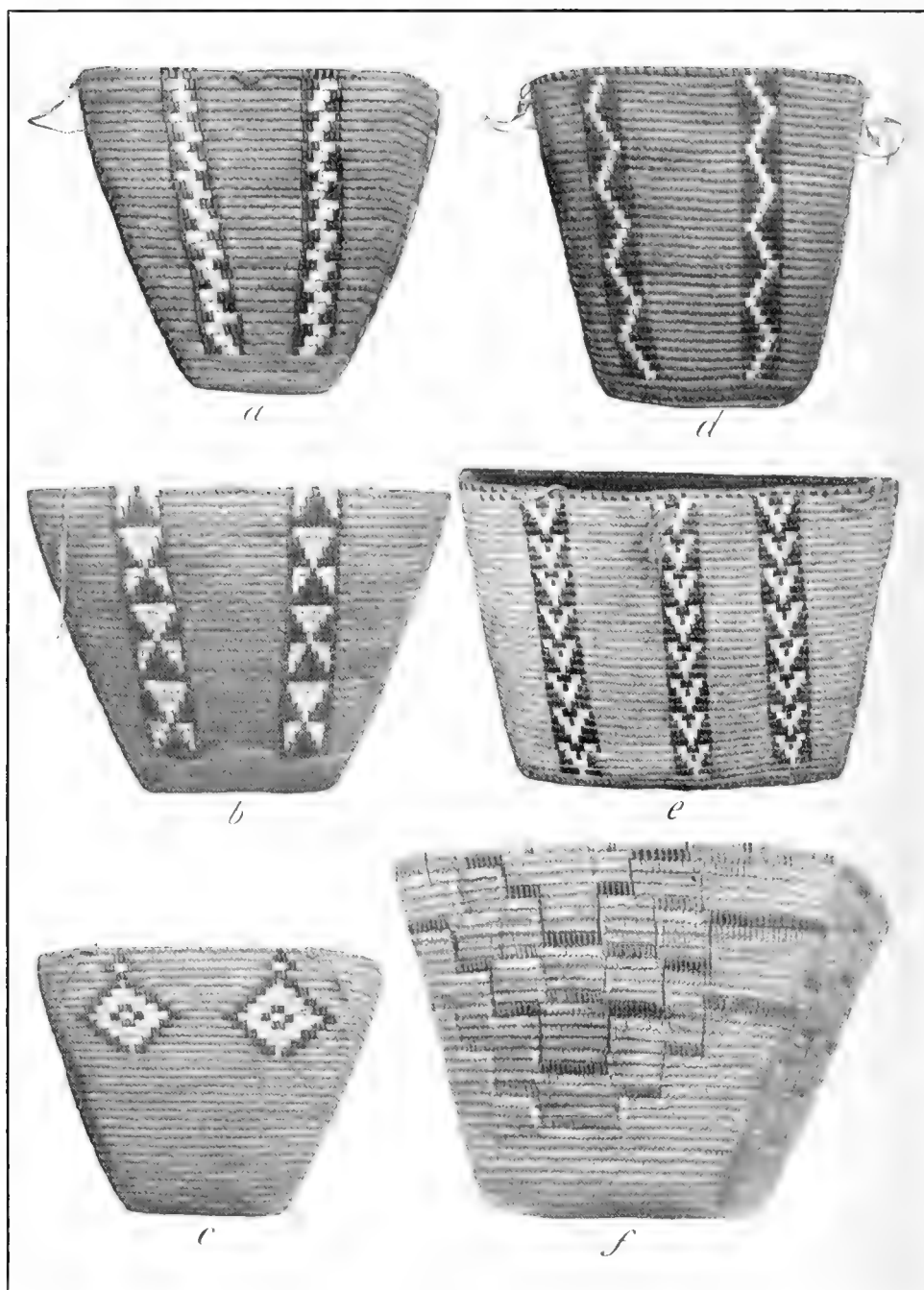
- a*, Lytton. V.I.M. 342. Design: "Tadpole," "Big bead," "Bird"
b, Thompson. V.I.M. 215. Design: "Zigzag," "Arrow point," "Patch" or "Tree," "Earth and trees"

REFERENCES TO PLATE

- a*, p. 249. Basket with isolated rectangles or squares with attached lines
b, p. 240. Zigzag design in horizontal arrangement
c, p. 262. Decoration by horizontal band
d, p. 186. Basket with lid of watch-spring coiling
p. 299. Basket with lid of watch-spring coiling
e, p. 244. Basket decorated with plain stripes
f, p. 244. Basket decorated with plain stripes
g, p. 243. Stripes with slipped double diagonals
h, p. 245. Diagonal stripe
i, p. 245. Vertical stripe with border consisting of triangles and central band
j, p. 281. Correction of direction of vertical stripe
k, p. 240. Diagonal arrangement of isolated patterns



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THOMPSON AND LILLOOET BASKETS

PLATE 37

- a, b, c*, Lillooet. A.M.N.H. 16-5910. Three views. Design, according to the Thompson: "Arrowhead;" "Half arrowhead" (Coldwater, Thompson); "Old head or embroidery pattern" (Nicola, Spences Bridge). According to the Lillooet, "Arrowhead," excepting that on the side (the diamond) of which the meaning was uncertain. It was thought to be a dream design and was regarded as sacred and not used by other women except the maker.
- d, e*, Thompson. A.M.N.H. 16-4622. Two views. Design: "Snake," "Snake track" (Thompson); "Variety of arrowhead" (Coldwater).
- f*, Thompson. A.M.N.H. 16-8824. Design: "Zigzag" or "Step"

REFERENCES TO PLATE

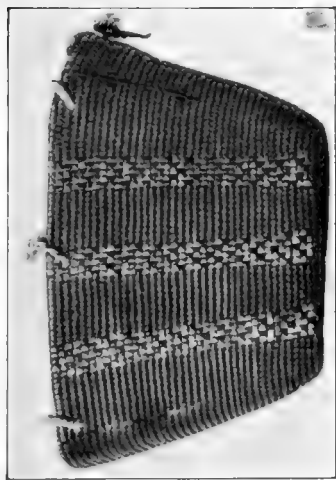
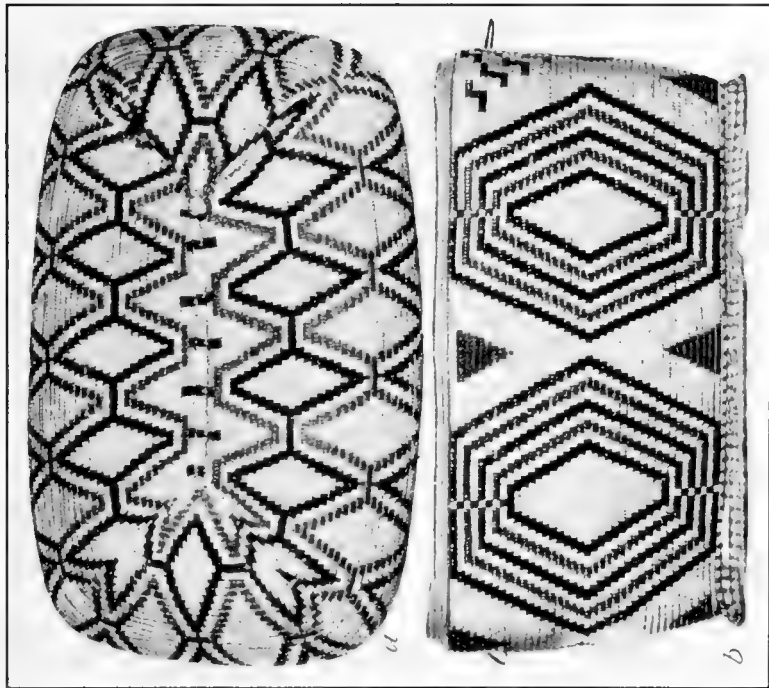
- a*, p. 230. Decoration in vertical bands
p. 244. Basket with vertical stripes with diagonals and triangles
- b*, p. 244. Vertical stripe with triangles
- c*, p. 253. Isolated diamonds
- d*, p. 244. Vertical stripe with zigzag
- e*, p. 244. Vertical stripe with chevrons
p. 253. Vertical stripe with chevrons
- f*, p. 268. Treatment of corner

PLATE 38

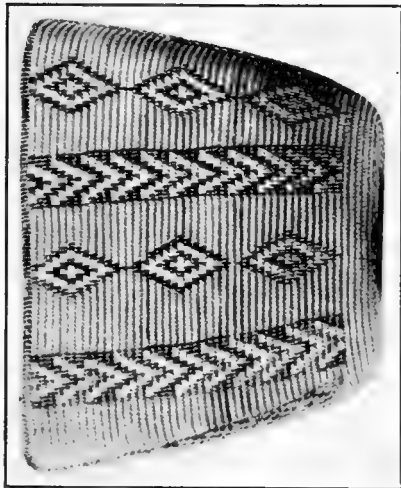
- a, b*, Thompson. Victoria Museum, Ottawa. V.I.M. 351
c, Fraser River. A.M.N.H. 16-8830. Design: "Snake," "Bead," "Embroidery" (Nicola); "Arrow point" (Thompson, Nicola)
d, Thompson. A.M.N.H. 16-4609. Design: On bands, "Arrowheads;" the diamonds, "Arrowheads," "Leaves," "Lakes" (Nicola); "Eyes." The other design was called "Ribs," "Necklace," "Bead embroidery"

REFERENCES TO PLATE

- a*, p. 205. Storage basket
p. 254. Diamonds
b, p. 205. Storage basket
p. 254. Hexagon
c, p. 244. Vertical stripe with chevrons
p. 253. Vertical stripe with chevrons
p. 284. Filler
d, p. 244. Vertical stripe with chevrons
p. 253. Vertical stripe with chevrons
p. 254. Vertical stripe with chevrons and diamonds in concentric arrangement

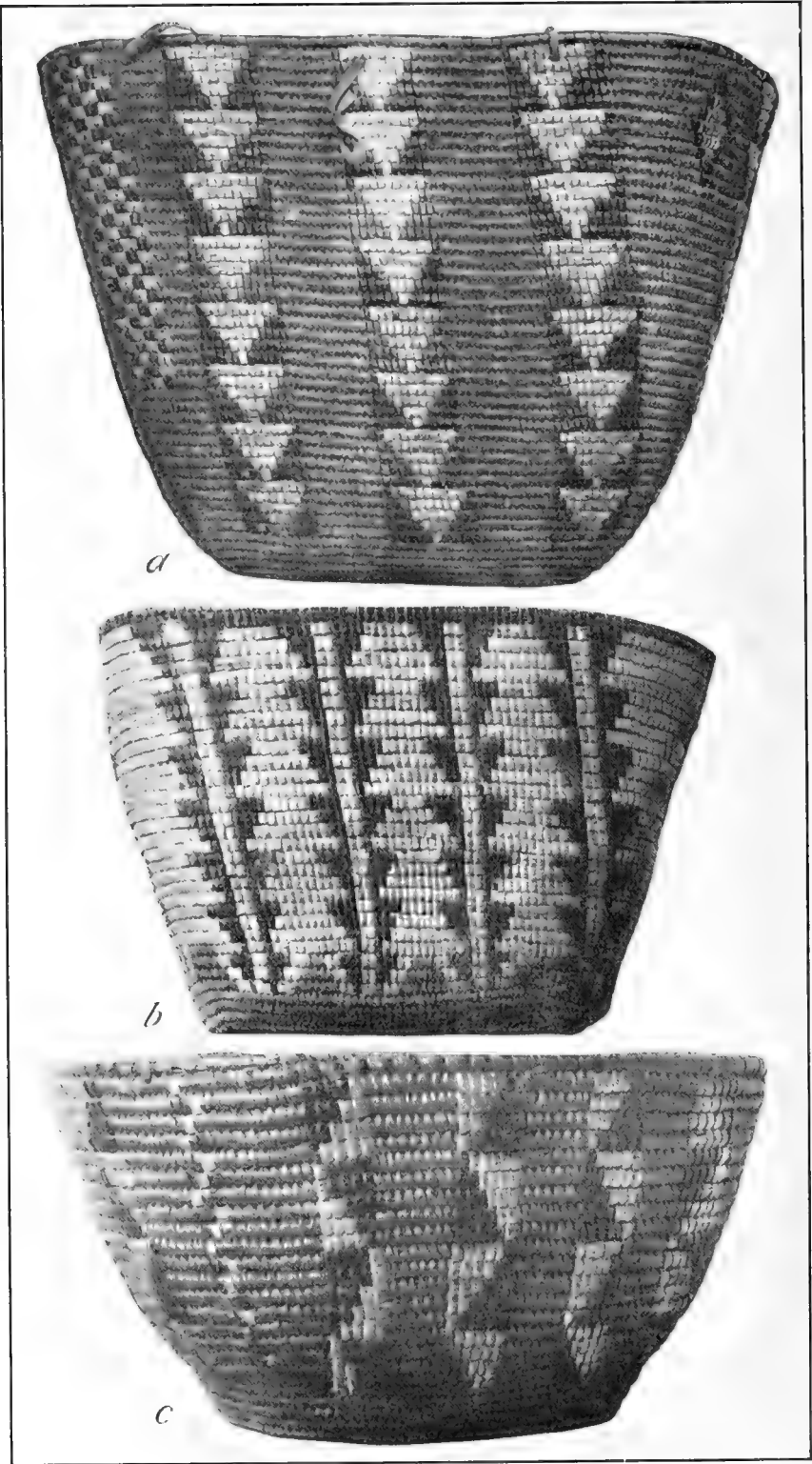


c



d

THOMPSON BASKETS



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PLATE 39

- a*, Thompson. A.M.N.H. 16-4624. Design: "Arrowheads" (Coldwater, Spuzzum, Thompson); "Entwining" (Thompson); "Snake skin." The superimposed triangles are sometimes called "Basket pattern," as representative of a pile of baskets
- b*, Thompson. A.M.N.H. 16-9543. Design: "Ladder" (all bands); "Arrowhead" (Coldwater, Spuzzum); "Half arrowhead." The real "ladder," according to the Uta'mqt, should have a vertical line down the center or at one side to represent the handhold on the type of ladder used in the underground house
- c*, Thompson. A.M.N.H. 16.1-473. Design: "Arrowhead"

REFERENCES TO PLATE

- a*, p. 244. Vertical stripe with diamonds
p. 284. Filler
- b*, p. 244. Vertical stripe with marginal triangles
- c*, p. 244. Vertical stripe consisting of rectangles divided diagonally
p. 283. Filler
p. 284. Filler

PLATE 40

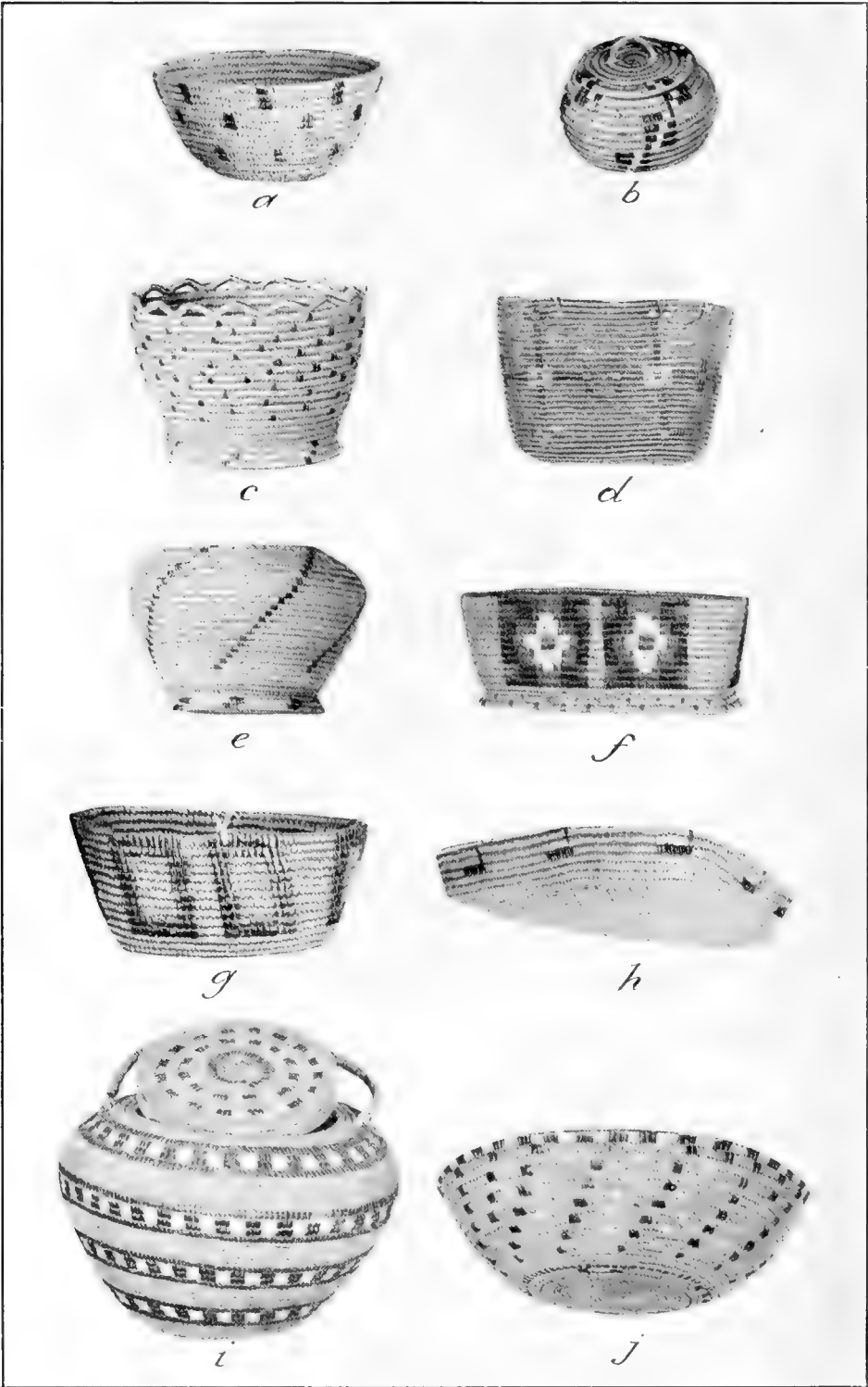
- a*, Lillooet or Thompson. A.M.N.H. 16.1-1580. Burden basket
b, Thompson. A.M.N.H. 16-4625. Design copied from the whites, according to the Coldwater. The Thompson say it is not old. "Circling" (Nicola), "Root digger" (Lyttton), "Cross head" (Spences Bridge). Among the Spuzzum it is rare. It is also called "Half circle" and "Heart"
c, Thompson. A.M.N.H. 16-8736. Design: "Flower," "Indian Paint Brush" (Utā'mqt)
d, e, Thompson. A.M.N.H. 16-8731. Two views. Design: "Arrowhead and two kinds of flowers, one of which is the Indian Paint Brush" (Utā'mqt); "Embroidery," "Spear blade"

REFERENCES TO PLATE

- a*, p. 243. Vertical stripe with triangles
p. 284. Filler
b, p. 283. Vertical stripe leaning to left and leaving a bare field on right-hand upper side
c, p. 194. Basket with handles
p. 381. Modern basket, flower design
d, p. 254. Vertical stripe with diamonds
e, p. 381. Modern basket, flower design



THOMPSON BASKETS



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PLATE 25

- a*, Thompson. A.M.N.H. 16-4638. Design: "Cross" (Utā'mqt, Coldwater); "Star" (Spuzzum, Spences Bridge, Coldwater, Nicola, Lytton, Thompson); "Morning star" (Spences Bridge, Nicola)
b, Thompson. U.S.N.M. 222587. Design: "Indian rice" (Lytton, Nicola)
c, Thompson. A.M.N.H. 16-1043
d, Thompson

REFERENCES TO PLATE

- a*, p. 240. Diagonal distribution of design
p. 240. All-over distribution of design
b, p. 240. All-over distribution of design
p. 253. Checker diamonds outlined in black
c, p. 239. Vertical arrangement of design
d, p. 239. Vertical arrangement of design
p. 240. All-over distribution of design
p. 251. Triangles

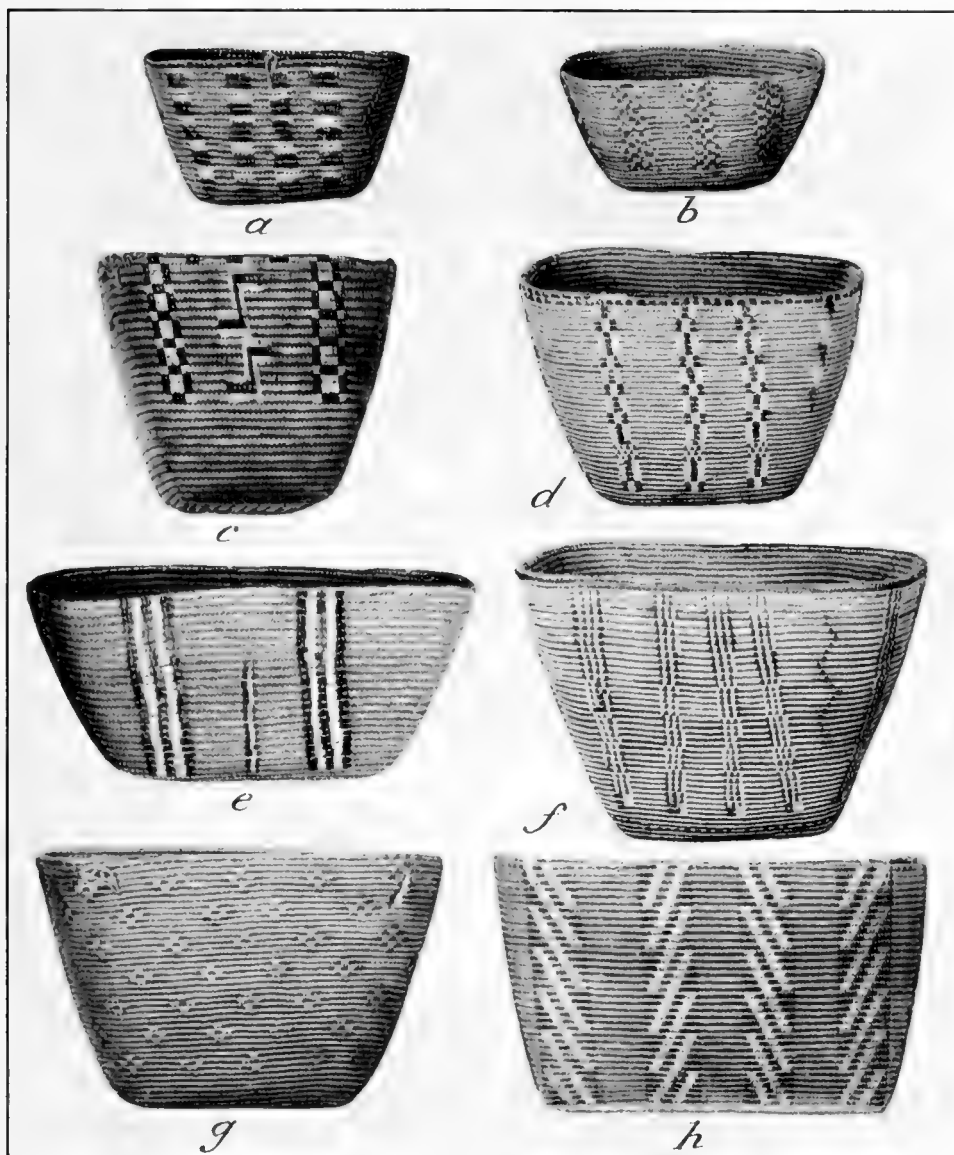
PLATE 26

[Victoria Museum, Ottawa]

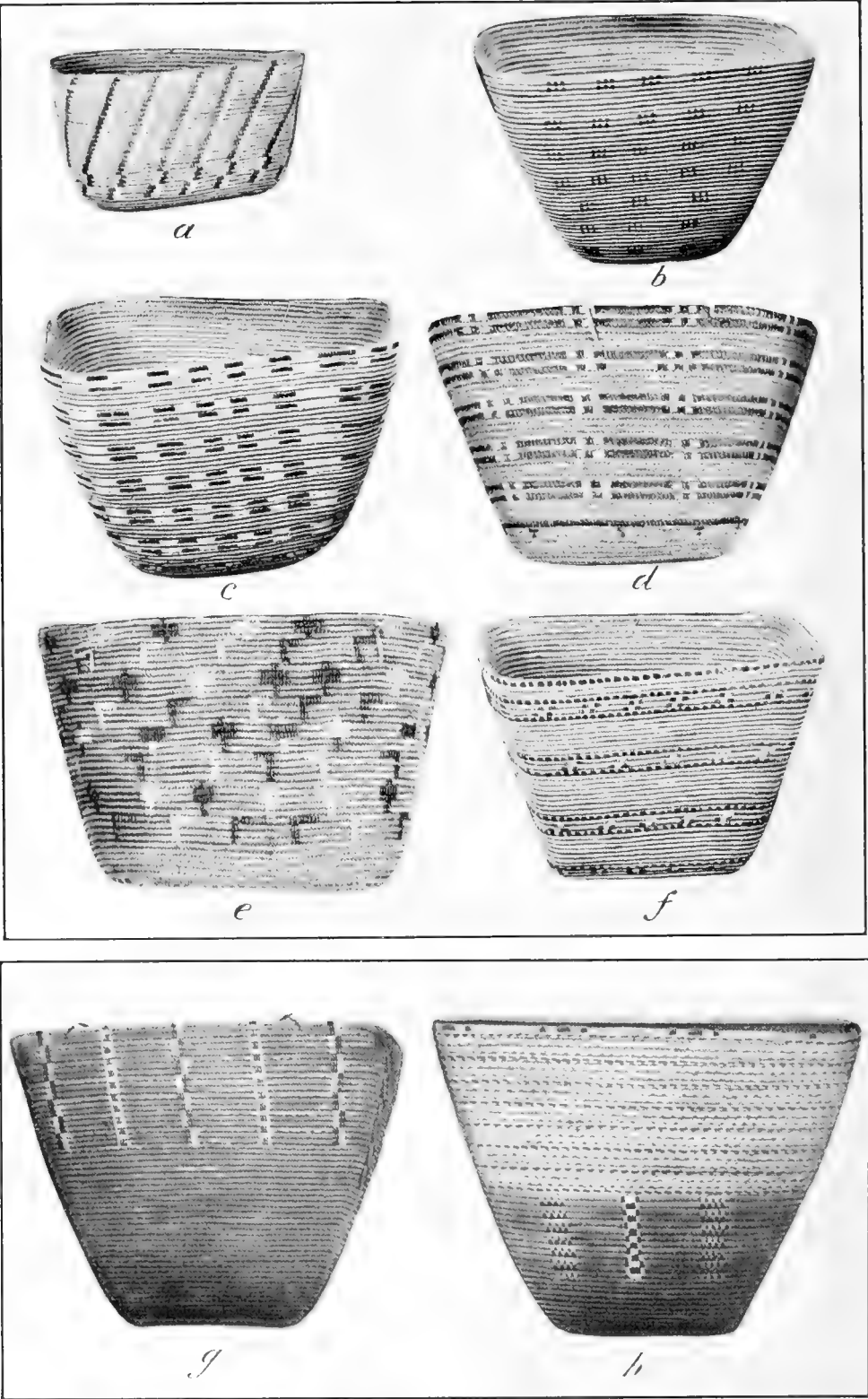
- a*, Thompson. VI.M. 288. Design: "Snake," "Bullsnake"
- b*, Thompson. VI.M. 289. Design: "Snake," "Fly," or "Little spot" (Lower Thompson)
- c*, Lilloet. V.I.O. 7
- d*, Thompson. VI.M. 282. Design: "Snake;" first filler, "Head;" second filler, "Tail;" third filler, "Half arrowhead"
- e*, Thompson. VI.M. 307. Design: "Striped snake"
- f*, Thompson. VI.M. 278. Design: On the stripes, "Dentalia;" on the filler, "Caterpillar"
- g*, Lilloet. V.I.O. 4
- h*, Lilloet. V.I.O. 3

REFERENCES TO PLATE

- a*, p. 239. Vertical arrangement of design
- p. 250. Rectangular design in vertical stripe
- p. 284. Filler
- b*, p. 239. Vertical arrangement of design
- c*, p. 239. Vertical arrangement of design
- p. 249. Squares consisting of six stitches and four coils
- d*, p. 239. Vertical arrangement of design
- p. 284. Filler
- e*, p. 239. Vertical arrangement of design
- f*, p. 239. Vertical arrangement of design
- p. 250. Vertical stripe consisting of rectangles
- p. 284. Filler
- g*, p. 240. All-over distribution of design
- h*, p. 205. Storage basket
- p. 239. Vertical arrangement of design
- p. 243. Stripe with long diagonals



THOMPSON AND LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 27

[a-f, Victoria Museum]

- a, Thompson. VI.M. 283. Design: "Striped snake"
b, Thompson. VI.M. 272. Design: "Spot"
c, Thompson. VI.M. 276. Design: "Necklace"
d, Thompson. VI.M. 348. Design: "Necklace," "Beads and copper tubes," below, "String of teeth"
e, Thompson. VI.M. 327. Design: "Cross," "Star," "Flying bird." The elbow or angle is called
 "Single hook," "Foot," "Leg," "Pipe"
f, Thompson. VI.M. 277. Design: "Twisted," "Rope," "Necklace," "Embroidery"
g, Lillooet. A.M.N.H. 16-5903. Beaded basket
h, Lillooet. A.M.N.H. 16-5902. Beaded basket

REFERENCES TO PLATE

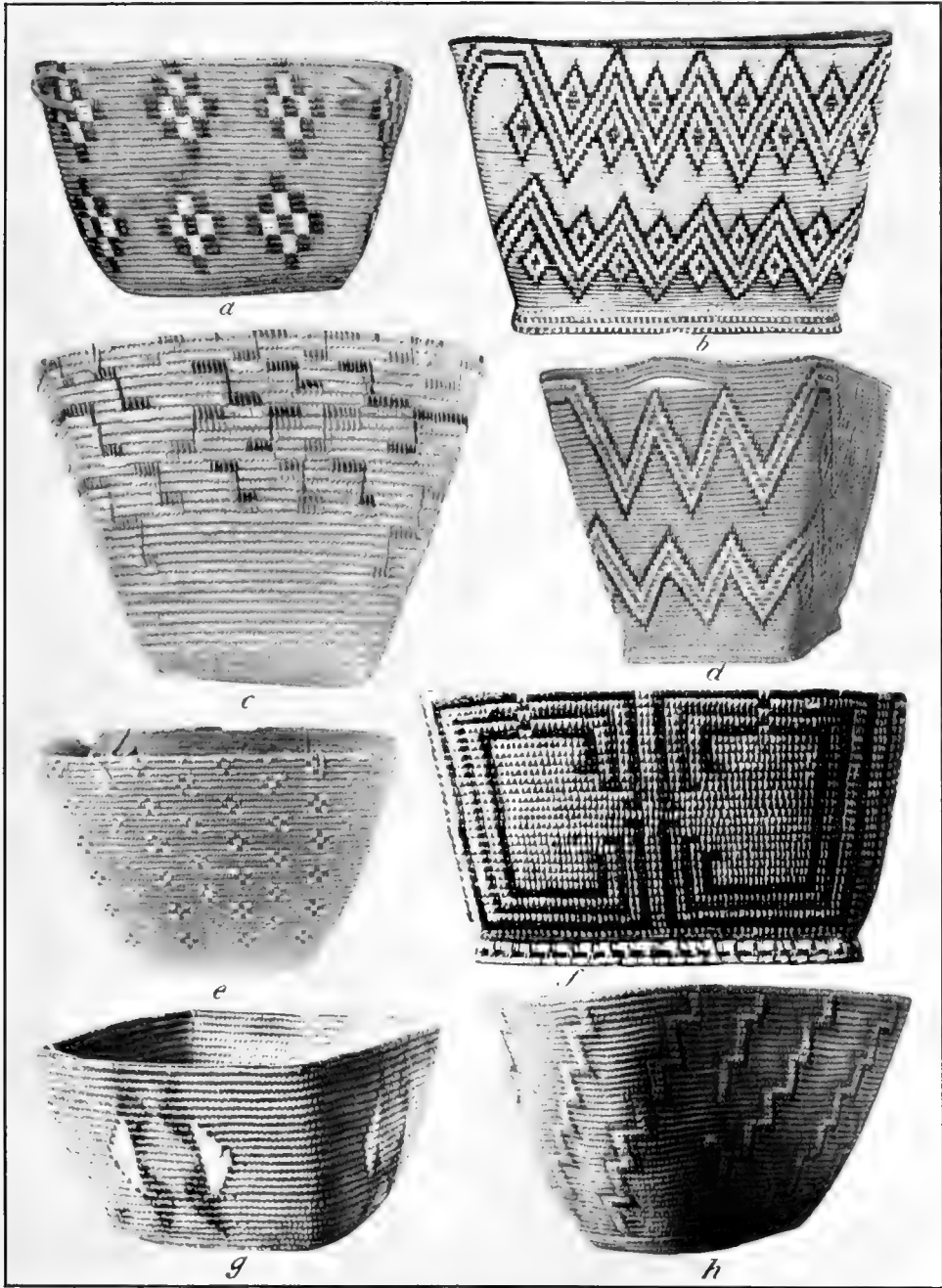
- a, p. 245. Diagonal stripe
b, p. 250. Small rectangles of varied colors
c, pp. 250, 262. Horizontal bands with rectangles
d, p. 234. Imbricated horizontal lines
 pp. 240, 250, 262. Horizontal bands with rectangles of varied colors
e, p. 240. All-over design in diagonal arrangement
f, p. 234. Horizontal lines in beading
 p. 262. Horizontal distribution of design
g, p. 234. Lillooet basket with vertical imbricated design and horizontal beading
h, p. 230. Lillooet basket with one beaded side

PLATE 28

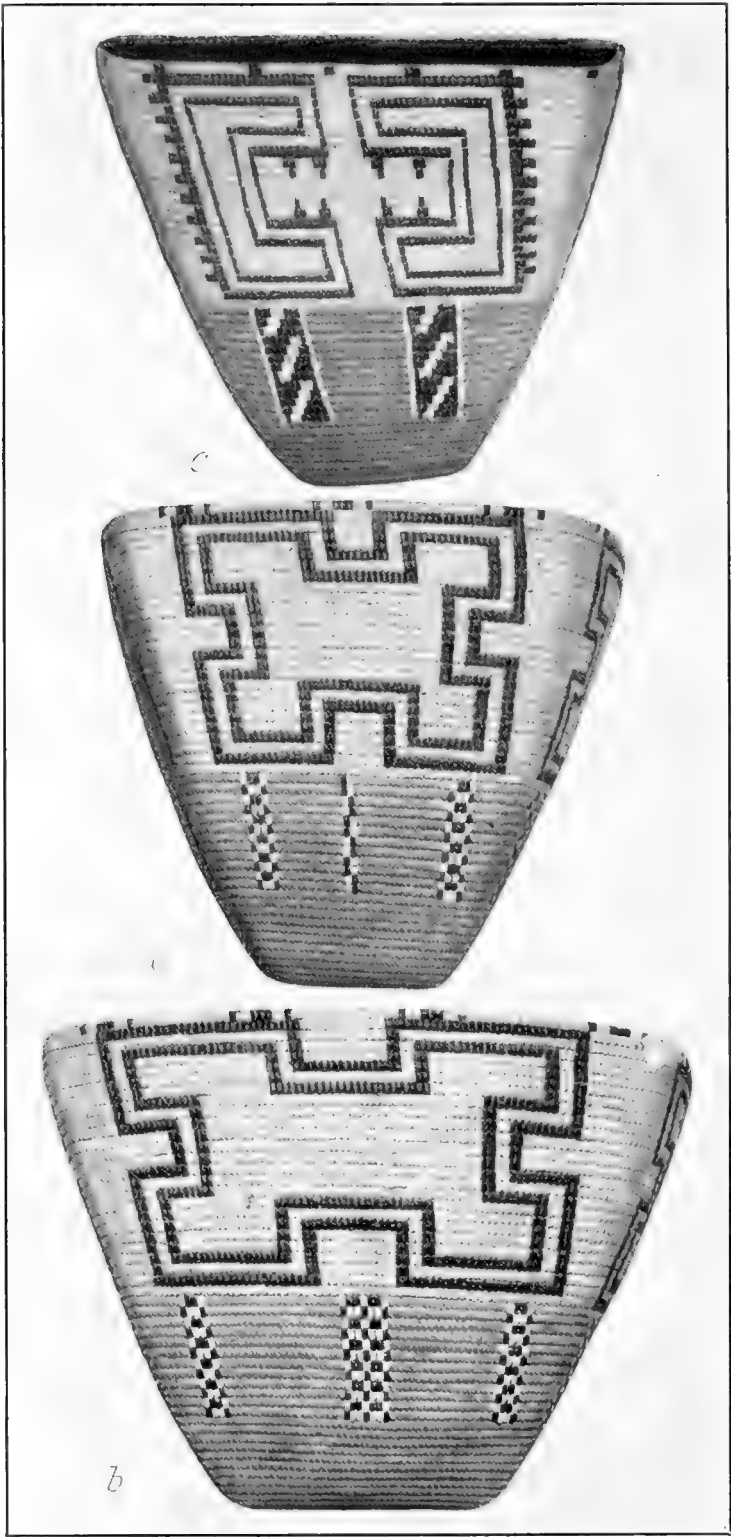
- a*, Thompson. A.M.N.H. 16-4608. Design: "Stars"
b, Thompson. A.M.N.H. 16-4637. Design: "Arrowhead," "Arrow points" (Coldwater), "Pack strap" (Spuzzum), "Zigzag" (Thompson), "Deer fence with snares" (Gladwin, Thompson Siding). (Long side of *d*)
c, Thompson. A.M.N.H. 16-8824. Design: "Leg," "Foot," "Double hook," "Net" (Thompson, Nicola)
d, Thompson. A.M.N.H. 16-4637. Design: "Sharp points," "Zigzag" (Thompson), "Arrow points" (Utā'mqt, Lytton). (Short side of *b*)
e, Thompson. U.S.N.M. 217438. Design: "Flower" (Buttercup, Larkspur), "Star" (Nicola), "Fly" (Utā'mqt), "Part of a long fly design" (Spuzzum)
f, Thompson. A.M.N.H. 16-4606
g, Thompson
h, Thompson. A.M.N.H. 16.1-449

REFERENCES TO PLATE

- a*, p. 240. Horizontal arrangement of design
b, p. 254. Diamonds used as designs
 p. 268. Treatment of zigzag at corner
c, p. 240. Diagonal arrangement of design
d, p. 240. Horizontal arrangement of zigzag
 p. 268. Treatment of zigzag at corner
e, p. 240. All-over distribution of design
f, p. 241. Large single design
g, p. 241. Large design on unimbricated background
 p. 262. Adjustment of figure to increasing diameter of basket
h, p. 240. Diagonal arrangement of design



THOMPSON BASKETS



LILLOOET BASKETS

PLATE 29

- a, b*, Lillooet. A.M.N.H. 16-5907. Long and short sides. Design: According to the Lillooet, "Notch," "Mouths in a circle," "Intestine and flies," "Intestine and beads." The design is not made in exactly the same way by the Thompson. Their pattern is called "Mouth design carried around in a circle" (Coldwater), "Variety of Notch" (Thompson), "Caterpillar design made in a circle" (Thompson Siding). The design on the droppers is called "Fly" by the Spuzzum.
- c*, Lillooet. A.M.N.H. 16-5906. This design is not made by the Thompson, but they interpret it among the Coldwater as a "Variety of the mouth design." The Thompson band call the dropper pattern "Xanaxa'in." The Lillooet interpret the design as "Arrowhead," while the large pattern is the "Tooth." The whole design is known as the "Head and mouth with hair along the back of the head"

REFERENCES TO PLATE

- a*, p. 239. Lillooet basket with droppers
 p. 242. Intestine design
 p. 252. Adjustment of figure to increasing diameter of basket
- b*, p. 239. Lillooet basket with droppers
 p. 252. Adjustment of figure to increasing diameter of basket
- c*, p. 239. Lillooet basket with droppers
 p. 242. Head design
 p. 252. Adjustment of figure to increasing diameter of basket
 p. 354. Decorated field divided by undecorated central band

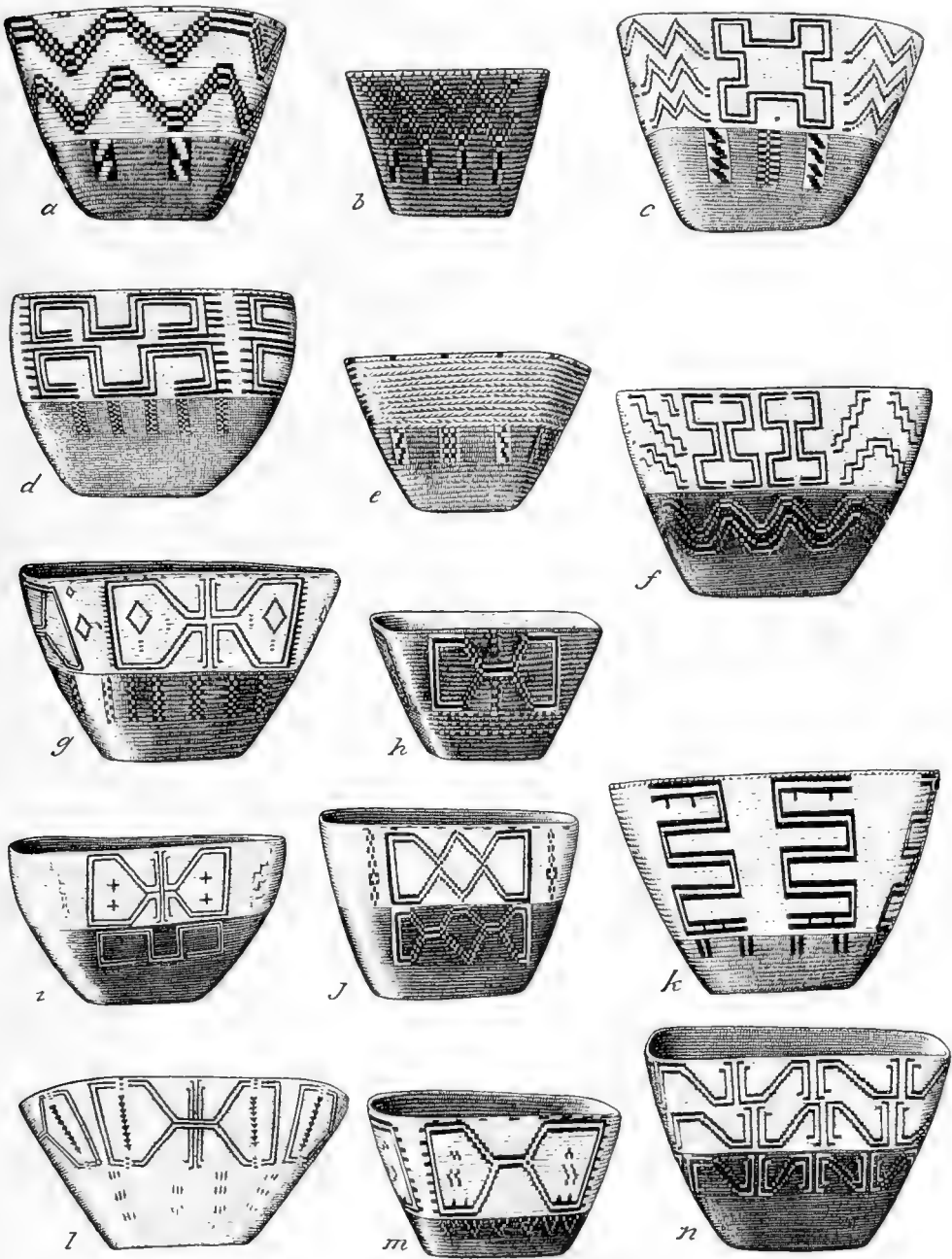
PLATE 30

[Field Museum]

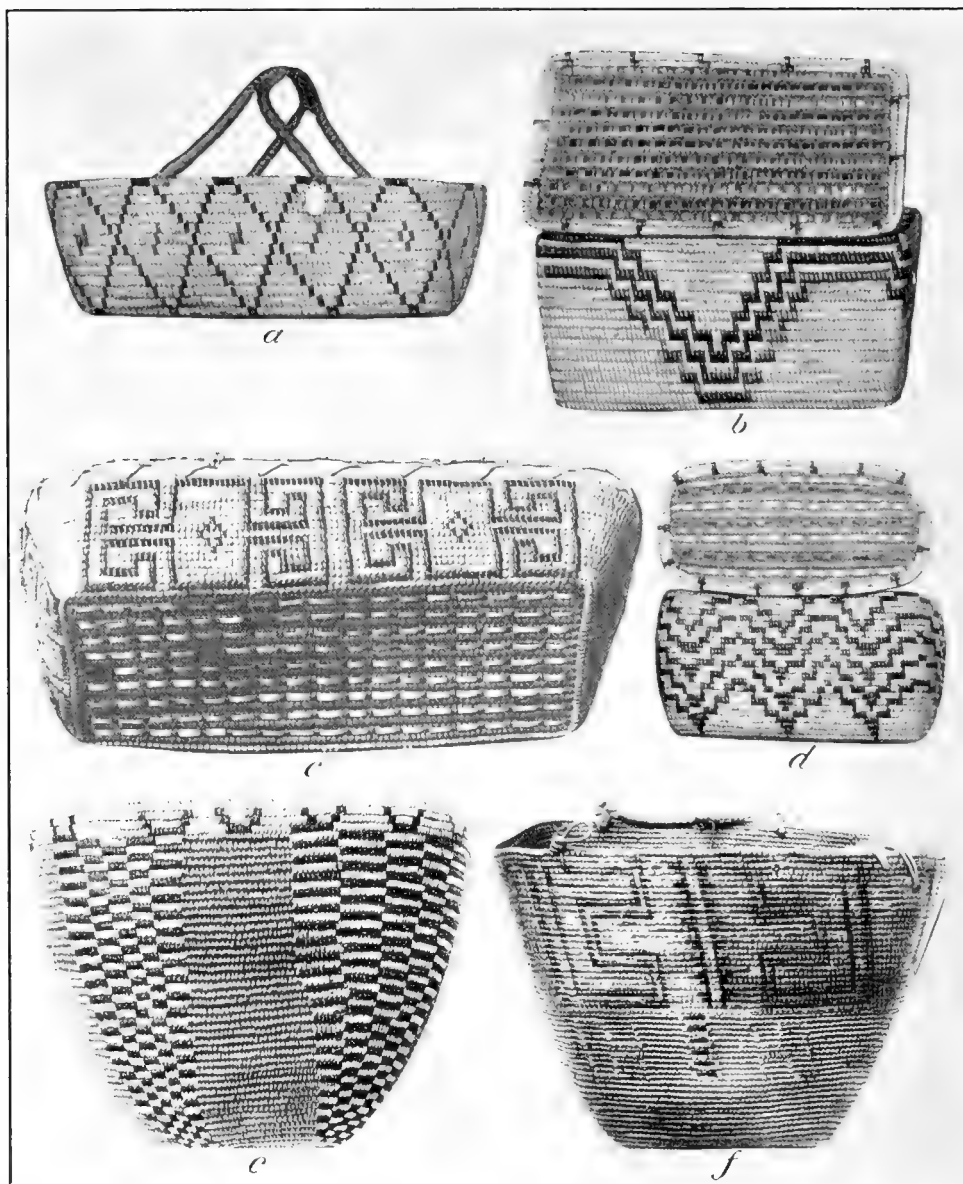
- a*, Lilloet. 57909. Carrying basket. New. Splint foundation. Upper part with white imbricated groundwork, two zigzag horizontal bands of checkered pattern; each side with two droppers
- b*, Lilloet. 57897. Carrying basket. Splint foundation. On three sides decorated, upper with horizontal zigzag in imbrication and droppers. Fourth side, five narrow droppers in black, white, and red
- c*, Lilloet. 85540. Basket for berries (tsale), of coiled root formation. A little more than one-half imbricated above. Sides with design, corners with zigzag pattern. All in red and black cherry on white ground
- d*, Lilloet. 57912. Carrying basket. Split-root foundation. Upper part with imbricated groundwork
- e*, Lilloet. 57888. Carrying basket
- f*, Lilloet. 85541. Basket for berries (tsale), of coiled root work. Design: Above, "Hand hammers;" below, "Mountains"
- g*, Lilloet. 57895. Carrying basket. Split-root foundation. Upper half decorated with imbricated stitch, butterfly design
- h*, Lilloet. 57896. Carrying basket. Splint foundation. Design: "Butterfly"
- i*, Lilloet. 85536. Carrying basket. Design: "Butterfly and rows of animals"
- j*, Lilloet. 85539. Carrying or berry basket. Slightly less than one-half imbricated above. Design: "Modified butterfly"
- k*, Lilloet. 57933. Carrying basket.
- l*, Lilloet. 85537. Carrying basket. Large upper half imbricated, "Butterfly" design. Imbricated droppers on lower half
- m*, Lilloet. 85538. Berry basket. "Butterfly" ornamentation; below, "Arrowheads"
- n*, Lilloet. 57902. Carrying basket. Split-root foundation

REFERENCES TO PLATE

- a-c*, p. 239. Lilloet basket with droppers consisting of vertical lines
- f*, p. 249. Lilloet basket, lower field decorated with large figures
- a*, p. 239. Lilloet basket with droppers consisting of vertical lines
- h*, p. 239. Lilloet basket with lower field decorated by horizontal beading
- i*, p. 239. Lilloet basket, lower field decorated with large figures
- j*, p. 239. Lilloet basket, lower field decorated with large figures
- k*, p. 239. Lilloet basket with droppers consisting of vertical lines
- l*, p. 239. Lilloet basket, lower field decorated with isolated lines
- m*, p. 239. Lilloet basket, lower field decorated with triangles
- n*, p. 239. Lilloet basket, lower field decorated with large figures



LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 31

- a*, Lillooet. A.M.N.H. 16-5898. Modern basket. Design, according to the Thompson: "Like a single design with a grave box" (Coldwater), "Net" (all other bands), "Part of a net" (Spuzzum), "Diamond pack-strap design" (Utâ'mqt). According to the Lillooet it is "Arrow"
- b*, Lillooet. A.M.N.H. 16-5890. Storage basket. Design on lid, as interpreted by the Thompson: "Beads;" on the basket, "Necklace," "Variation of the flying bird design," "Zigzag," "Ladder" (Lytton, Gladwin). The Lillooet call the main design "Lightning"
- c*, Lillooet. A.M.N.H. 16-6940. Modern storage basket. According to the Lillooet the design belongs to the white man. It was copied from the border of a handkerchief
- d*, Lillooet. A.M.N.H. 16-5893. Modern storage basket. Design, according to the Thompson: "Variation of the snake track" (Coldwater); "Necklace" (Spences Bridge, Nicola); "Variation of the ladder" (Gladwin); "Zigzag." On the edge of the lid, "Arrowhead;" in the center, "Bead." According to the Lillooet the designs are "Lightning" and "Arrowhead"
- e*, Thompson. Burden basket
- f*, Lillooet. U.S.N.M. 217436. Burden basket. Design: "Head"

REFERENCES TO PLATE

- a*, p. 195. Basket with coiled handle
p. 254. Diamonds
- b*, p. 225. Beaded lid
p. 234. Imbricated diagonal lines
- c*, p. 225. Basket with beaded bottom
- d*, p. 225. Beaded lid
p. 234. Imbricated diagonals
- e*, p. 262. Adjustment of figure to increasing diameter of basket
- f*, p. 337. Method of adjustment of figure to upper field of Lillooet basket with unrelated droppers

PLATE 32

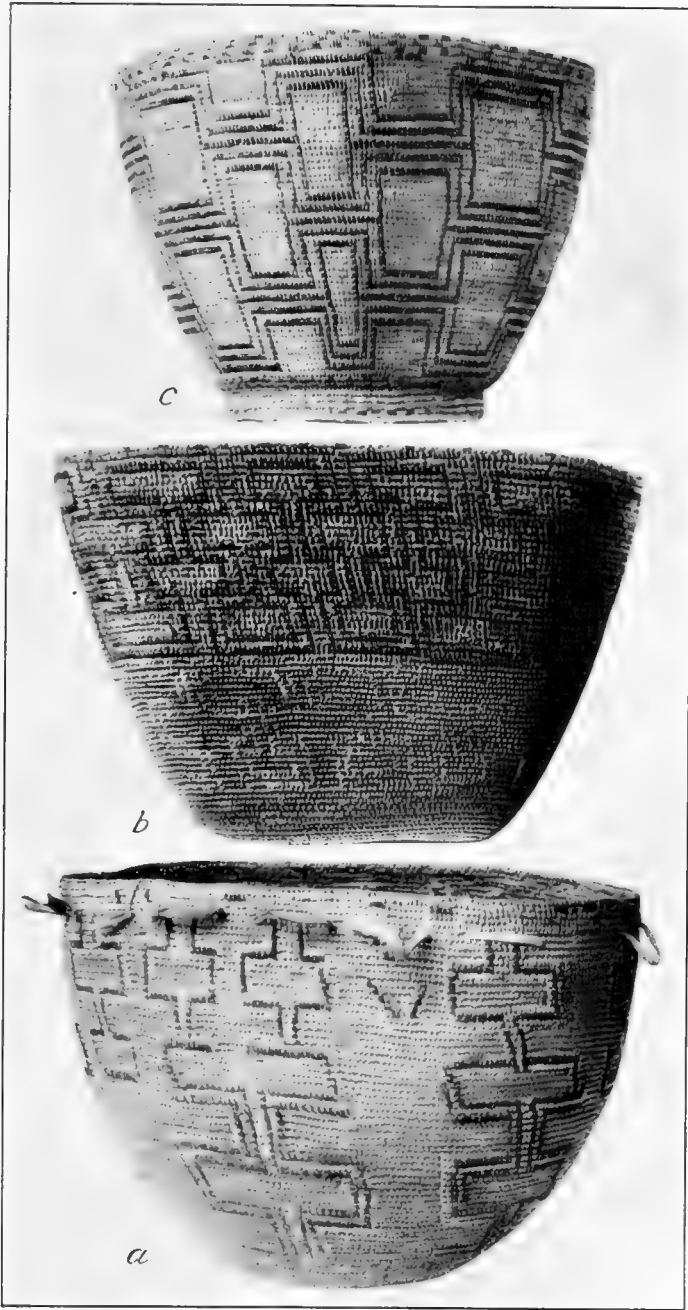
a, Thompson. U.S.N.M. 222032

b, Lytton or Lower Thompson. Design, according to Lytton: "Notch;" and Lower Thompson "Mouth"

c, Thompson. A.M.N.H. 16-4623. Design: At rim, "Spot" (Coldwater); "Step," "Ladder" (Lytton); "Heaped up" (Nicola); "Embroidery" (Spences Bridge). The main design, "Variation of the grave box" (Utá'mqt, Coldwater, Spuzzum, Lytton, Thompson, Nicola). Also, "Lakes and creeks"

REFERENCE TO PLATE

a-c, p. 240. Large rectangular connected designs covering the whole wall or the upper part of the basket



THOMPSON BASKETS



THOMPSON BASKETS

PLATE 49

- a*, Above, Lillooet(?); below, Lillooet(?). Storage baskets
b, Thompson. A.M.N.H. 16.1-27. Design: "Indian rice"
c, Lillooet or Thompson. Storage basket
d, Lillooet. A.M.N.H. 16-5892. Design in the center, according to the Thompson: "Half arrow-head," "Stripes," "Ladder" (Gladwin); "Caterpillar" (Lytton, Utā'mqt). According to the Lillooet, "Arrowhead" and "A variety of lightning"
e, Basket, provenience unknown
f, Fraser River. A.M.N.H. 16-8837. Design on the bands and at the corners: "Dentalia," "Half arrowheads;" on the diamonds, "Arrowheads and lakes," "Leaves," "Eyes" (Nicola)

REFERENCES TO PLATE

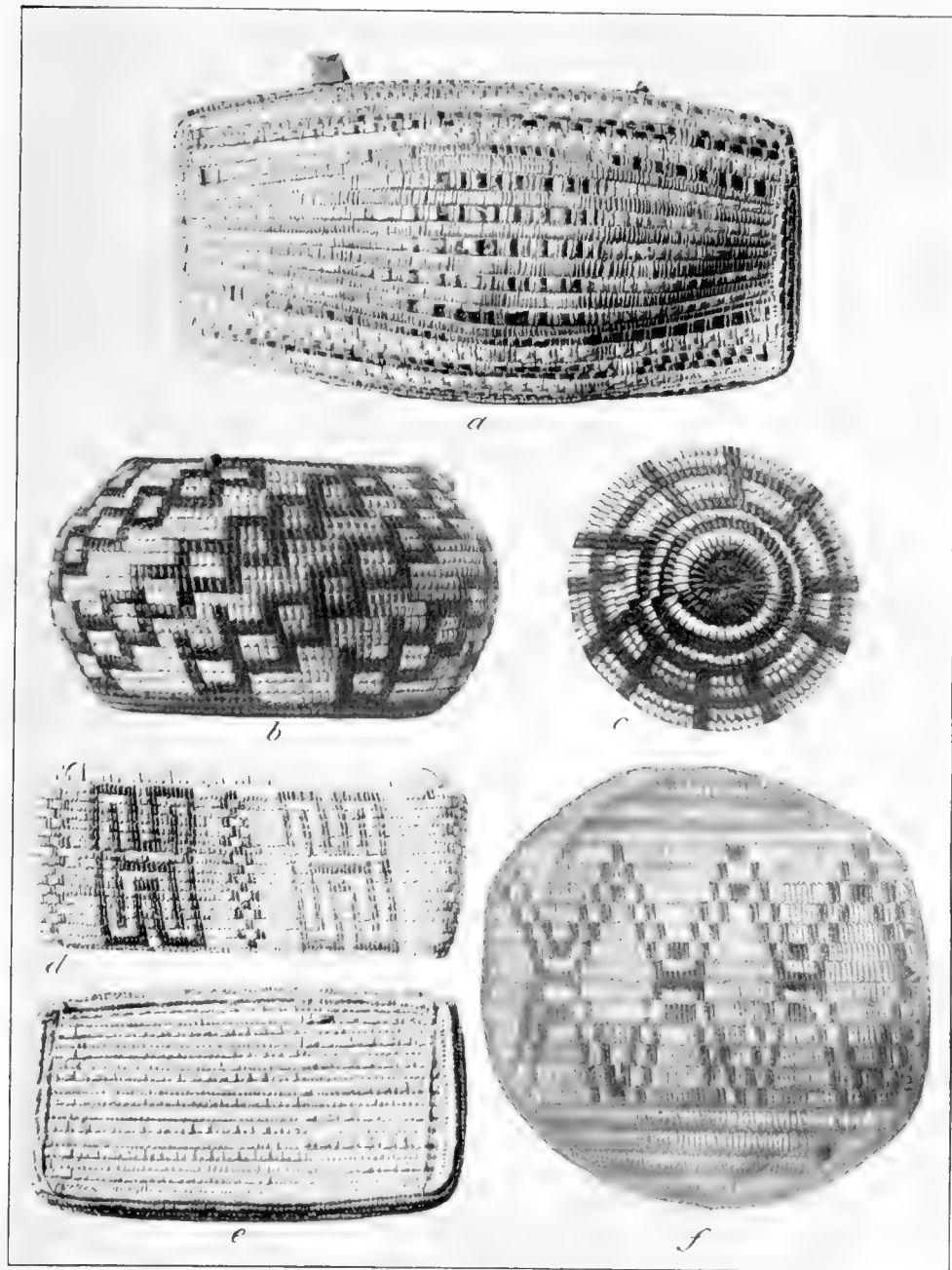
- a* (top), p. 254. Storage basket with large hexagonal designs
a (bottom), p. 245. Asymmetry of colors in vertical stripe
b, p. 289. Detailed discussion of decoration
c, p. 253. Black diamonds outlined in checkerwork
p. 299. Lid
d, p. 244. Broad vertical stripe with diagonals not reaching the edges
e, p. 254. Diamond pattern on unimbricated background
f, p. 283. Filler

PLATE 50

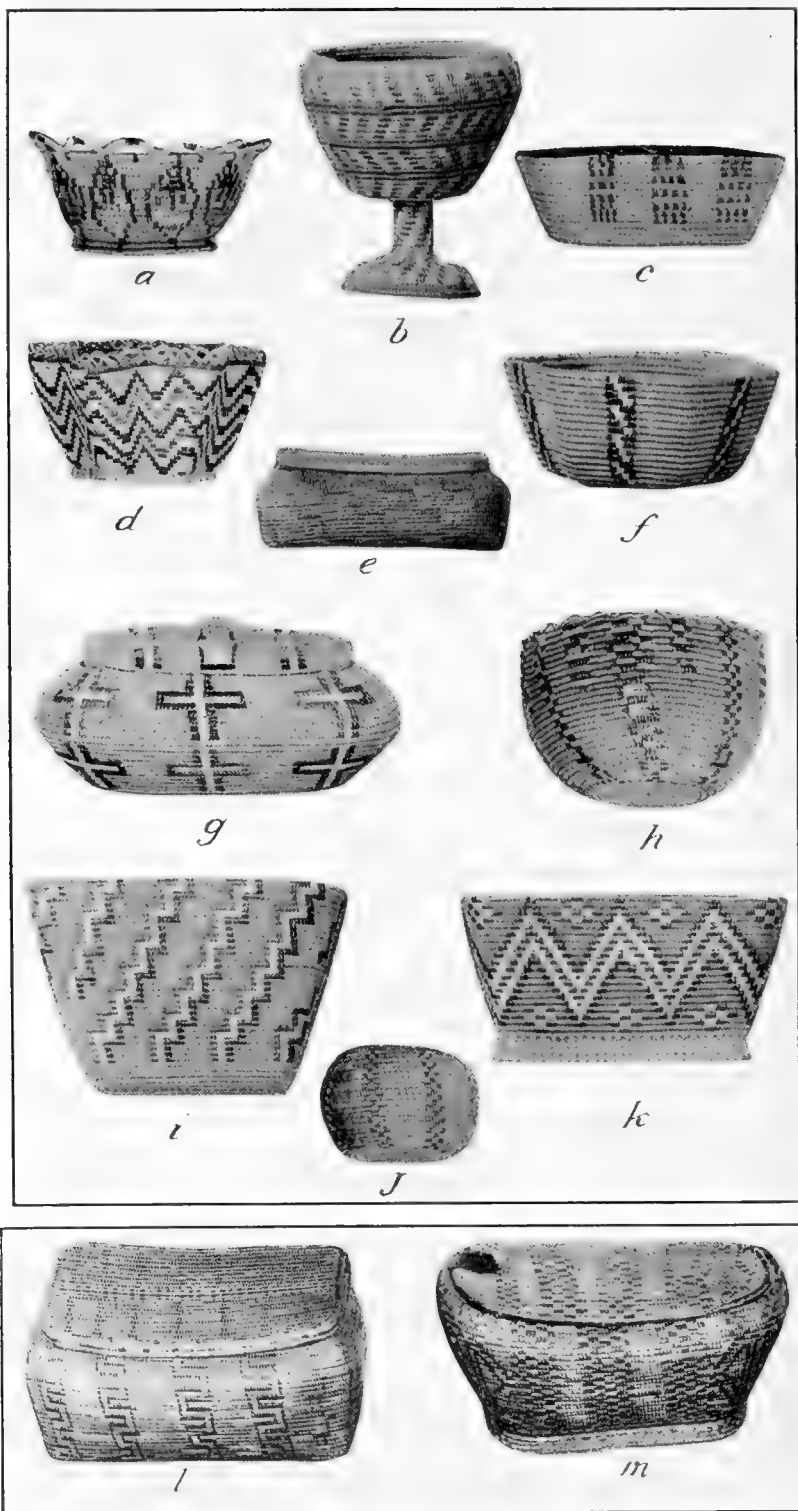
- a*, Beaded lid of basket. *See also* Pl. 56, *a*
b, c, Lytton. Basket and lid. Design: "Snake"
d, e, Upper Thompson. Basket and lid. Design: "Mouth"
f, Basket, provenience unknown

REFERENCES TO PLATE

- a*, pp. 225, 299. Beaded lid
b, p. 240. Diagonal arrangement of squares
c, p. 186. Watch-spring lid
d, p. 205. Storage basket
p. 342. Storage basket, comparison between Lillooet and Thompson mouth designs
e, p. 227. Beaded horizontal arrangement of decoration
pp. 225, 299. Beaded lid
f, p. 229. Circular bottom of basket with design crossing center
p. 299. Decorated slat bottom



THOMPSON BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 51

[Victoria Museum, Ottawa]

- a*, Thompson. VI.M. 248. Design: "Cactus"
b, Thompson. VI.M. 65. Design: "Rib"
c, Thompson. VI.M. 305. Design: "Rain"
d, Thompson. VI.M. 335. Design: "Arrow point," "Zigzag," "Mountain"
e, Thompson. VI.O. 14
f, Thompson. VI.M. 243. Design: "Half arrowhead," "Xanaxa'in," "Dentalia"
g, Thompson. VI.M. 256. Design: "Star," "Cross"
h, Thompson. VI.M. 32. Design: "Snake skin;" short lines, "Tails of snakes"
i, Ruby Creek. VI.M. 50. Design: "Zigzag," "Step"
j, Thompson. VI.O. 15
k, Ruby Creek. VI.M. 34. Design: "Zigzag," "Arrow point," "Diamond," "Indian rice"
l, Lillooet. VI.O. 8. Storage basket
m, Thompson. VI.M. 35. Design at the corners: "Butterflies;" other designs are "Spots"

REFERENCES TO PLATE

- a*, p. 483. Sketch No. 852, Plate 94, realistic design representing cactus
b, p. 240. Horizontal arrangement of diagonal lines
c, p. 239. Vertical lines
d, p. 240. Horizontal arrangement of zigzag
e, p. 240. Diagonal lines leaning leftward
f, p. 239. Vertical stripe
g, p. 299. Basket with lid
h, p. 262. Adjustment of figure to increasing diameter of basket
i, p. 240. Diagonal arrangement of design
j, p. 240. Vertical stripe
k, p. 240. Horizontal arrangement of zigzag
l, p. 284. Filler
p. 299. Lid
m, pp. 299, 300. Lid

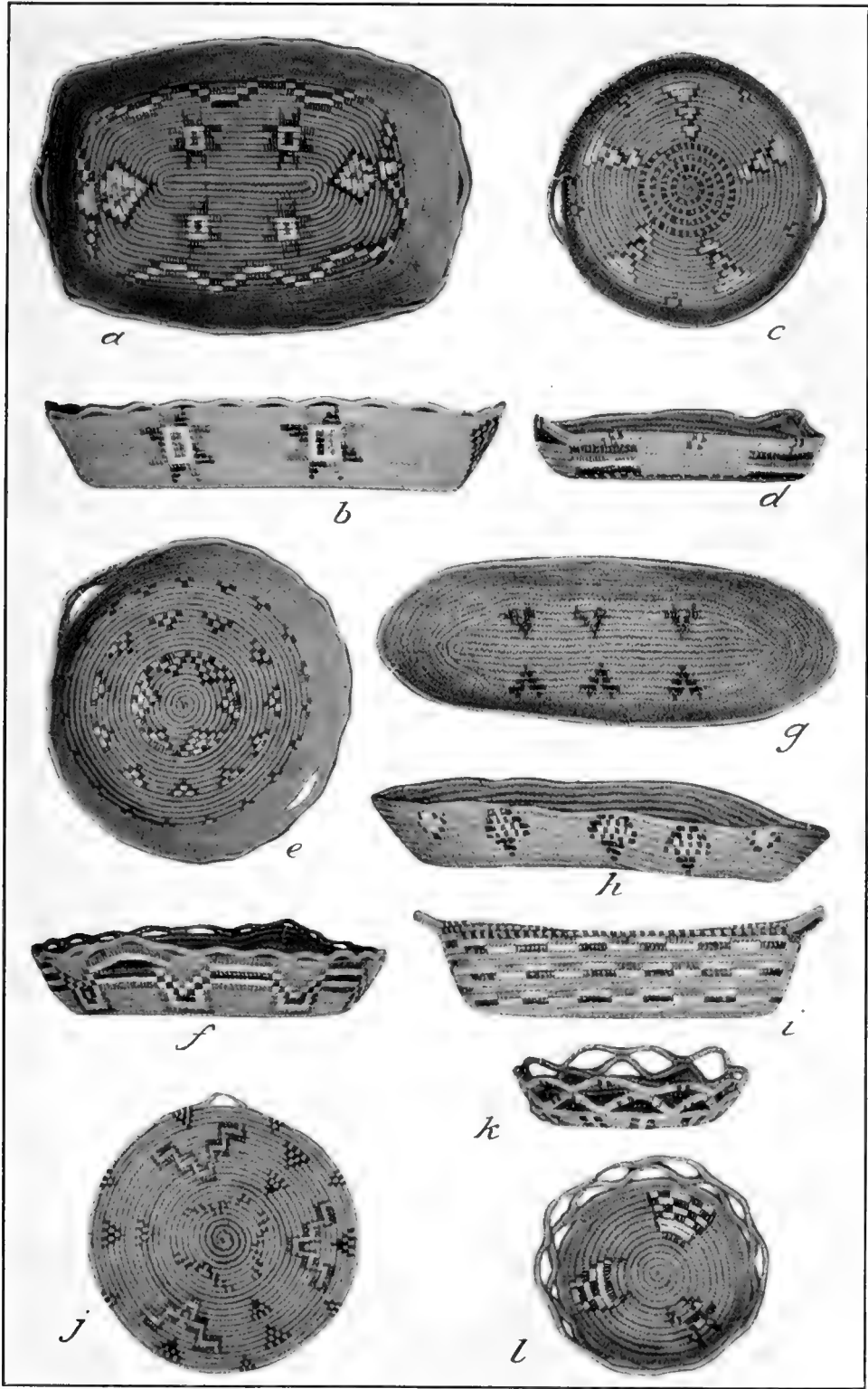
PLATE 52

[Victoria Museum, Ottawa]

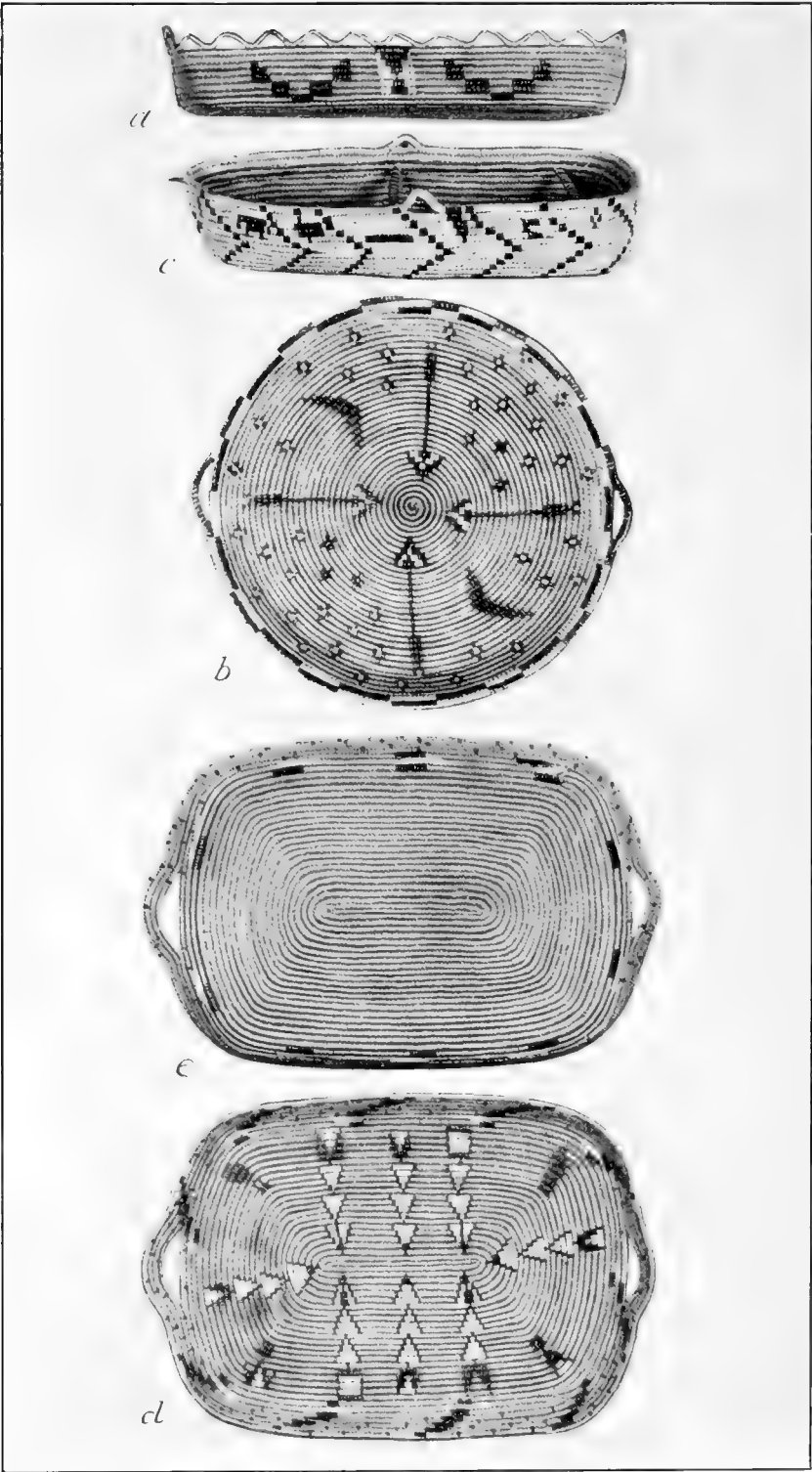
- a, b*, Thompson. V.I.M. 205. Two views. Design: "Star," "Cloud," "Cloud and Mountain," "Necklace," "Arrowhead star," "Spearhead"
- c, d*, Thompson. V.I.M. 201. Two views. Design: "Beads," "Arrowheads," "Star," "Clouds"
- e, f*, Thompson. V.I.M. 195. Two views. Design: "Cloud," sometimes called "Mountain," "Half Indian rice," "Half fly" (Utā'mqt); "Half star" (Nicola)
- g, h*, Thompson. V.I.M. 208. Two views. Design: "Arrowhead," "Leaf," "Indian rice"
- i*, Thompson. V.I.M. 207. Design: "Necklace"
- j*, Thompson. V.I.M. 196. Design: "Clouds," "Steps"
- k, l*, Thompson. V.I.M. 194. Two views. Design: "Mountain," "Head," "Points called horns," and "Arrowhead star," "Spot;" large design, "Cloud"

REFERENCES TO PLATE

- a-l*, p. 300. Arrangement of designs
- a, b*, p. 254. Star design
- c*, p. 229. Tray with radial arrangement of ornament



THOMPSON TRAYS



THOMPSON TRAYS

PLATE 53

[Victoria Museum, Ottawa]

- a*, Thompson. VI.M. 330. Design: "Arrowhead and flying crane"
b, Thompson. VI.M. 198. Design at edge: "Clouds" (Nicola, Spences Bridge); at center, "Arrows, moon, and stars" (Nicola); "Embroidery" (Lytton)
c, Thompson. VI.M. 343. Design: "Wave," "Coyote," "Duck," "Star"
d, e, Thompson. VI.M. 218. Two views. Design: Main design, "Arrowhead" or "Arrow chain." The squares at the bottom, "Arrow feathers;" the triangles, "Arrow nock;" "Spot," "Fly," "Mountain side"

REFERENCE TO PLATE

a-e, p. 300. Arrangement of designs

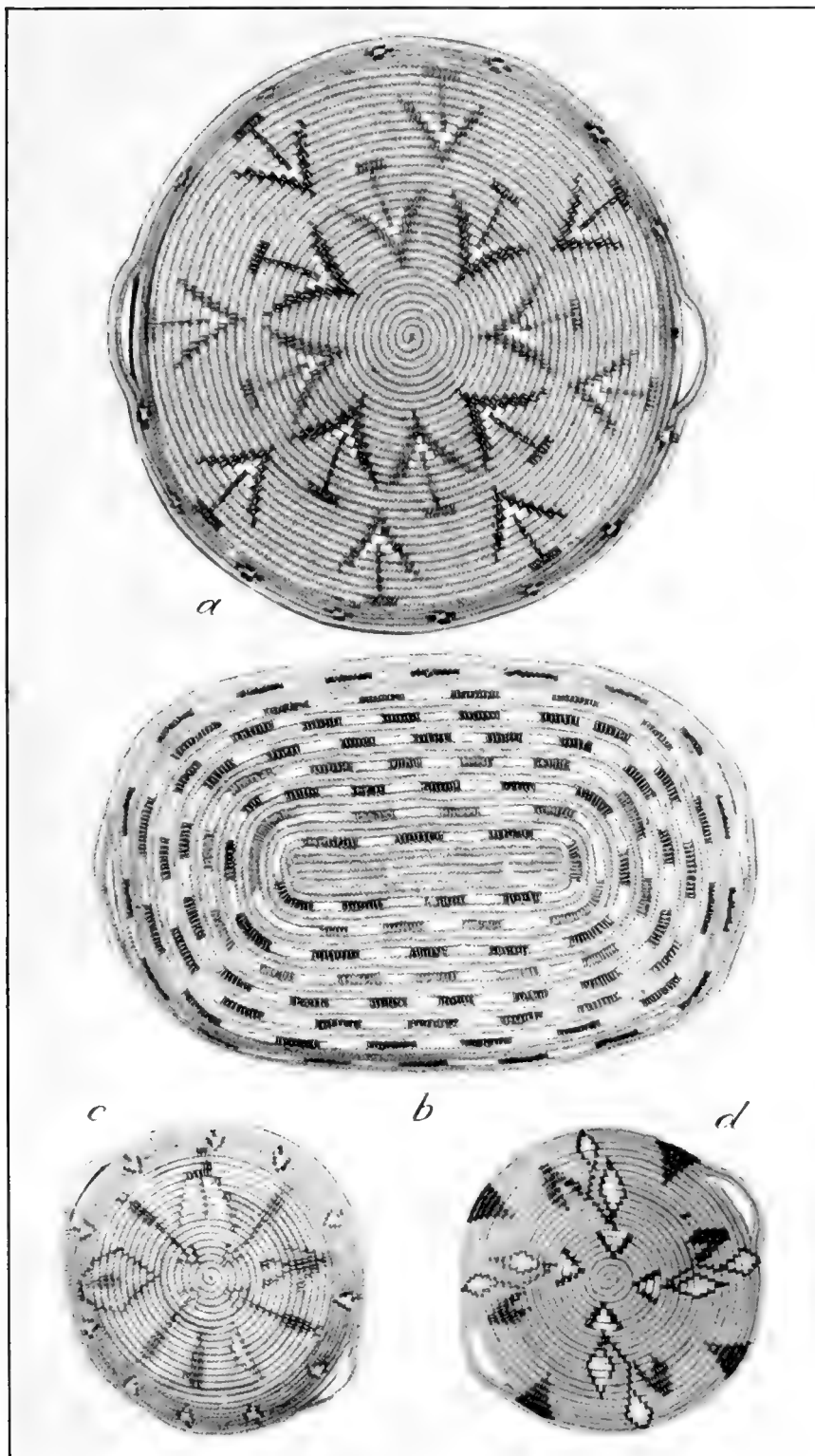
PLATE 54

[Victoria Museum, Ottawa]

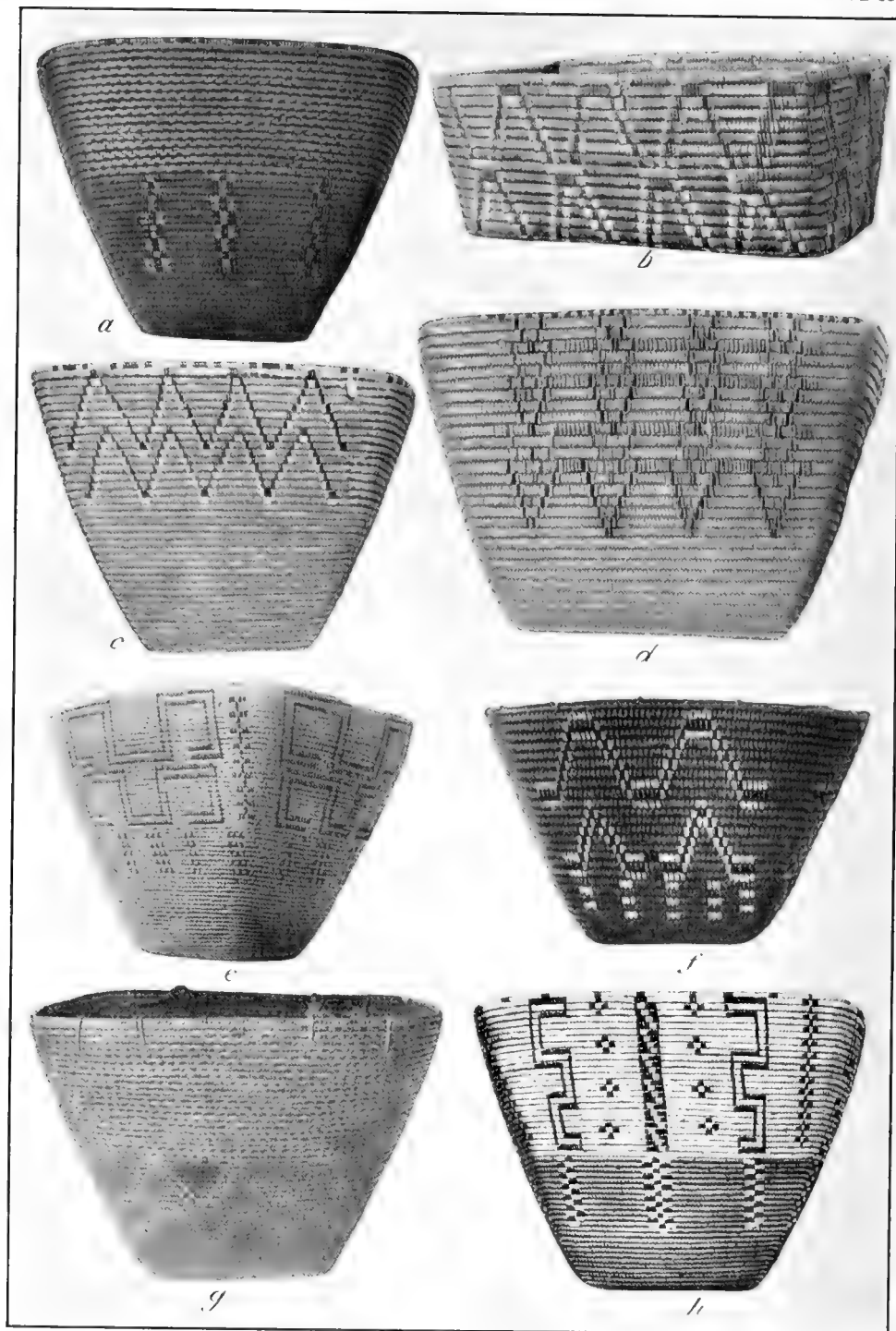
- a*, Thompson. VI.M. 414. Tray. Design: "Fish spear" and "Small star"
b, Thompson. VI.M. 203
c, Thompson. VI.M. 347. Design at the edge: "Arrowheads;" in the middle, "Young man in dancing attire; his sweat house; the sun, moon; his war club and four arrows"
d, Thompson. VI.M. 425. Main design, "Flower;" at rim, "Tipis"

REFERENCES TO PLATE

- a-d*, p. 300. Arrangement of designs
a, p. 229. Tray with radial arrangement of ornament
b, p. 229. Oval tray with design, direction of coiling
c, p. 229. Tray with radial arrangement of ornament



THOMPSON TRAYS



LILLOOET BASKETS

PLATE 55

- a, c*, Lillooet. A.M.N.H. 16-5904. Two views. According to the Thompson: "Pack strap" (Coldwater, Utā'mqt, Spuzzum, Lytton). Also "Arrow points," but it is said that this is not the proper term because the angles fit too closely into one another. According to the Lillooet these are "Fly" patterns, but no name was obtained for the other large design
- b*, Lillooet. Trunk
- d*, Harrison Lake. A.M.N.H. 16.1-504. Design: "Variation of an arrow point," "Zigzag"
- e*, Lillooet. U.S.N.M. 217435
- f*, Harrison Lake. A.M.N.H. 16.1-513
- g*, Lillooet. U.S.N.M. 219878. The upper design: "Beads," "Spots;" lower design, "Zigzag," "Necklace," "Deer fence"
- h*, Lillooet. A.M.N.H. 16-5908. According to the Thompson meanders: "Variety of the mouth design" (Coldwater); "Caterpillar" (Utā'mqt). In the upper field the checker stripes and the clusters are "Fly" (Spuzzum, Utā'mqt); "Stars" (Nicola); "Flower," "Buttercup" (Spences Bridge, Lytton). The designs on the droppers, "Snake" (Nicola, Spences Bridge, Lytton); "Embroidery" (Lytton, Stlaxa'iuḡv); "Fly" (Spuzzum, Utā'mqt); the clusters, "Leaf" (Utā'mqt). According to the Lillooet the designs are "Flies," "Half circles," "Arrowheads"

REFERENCES TO PLATE

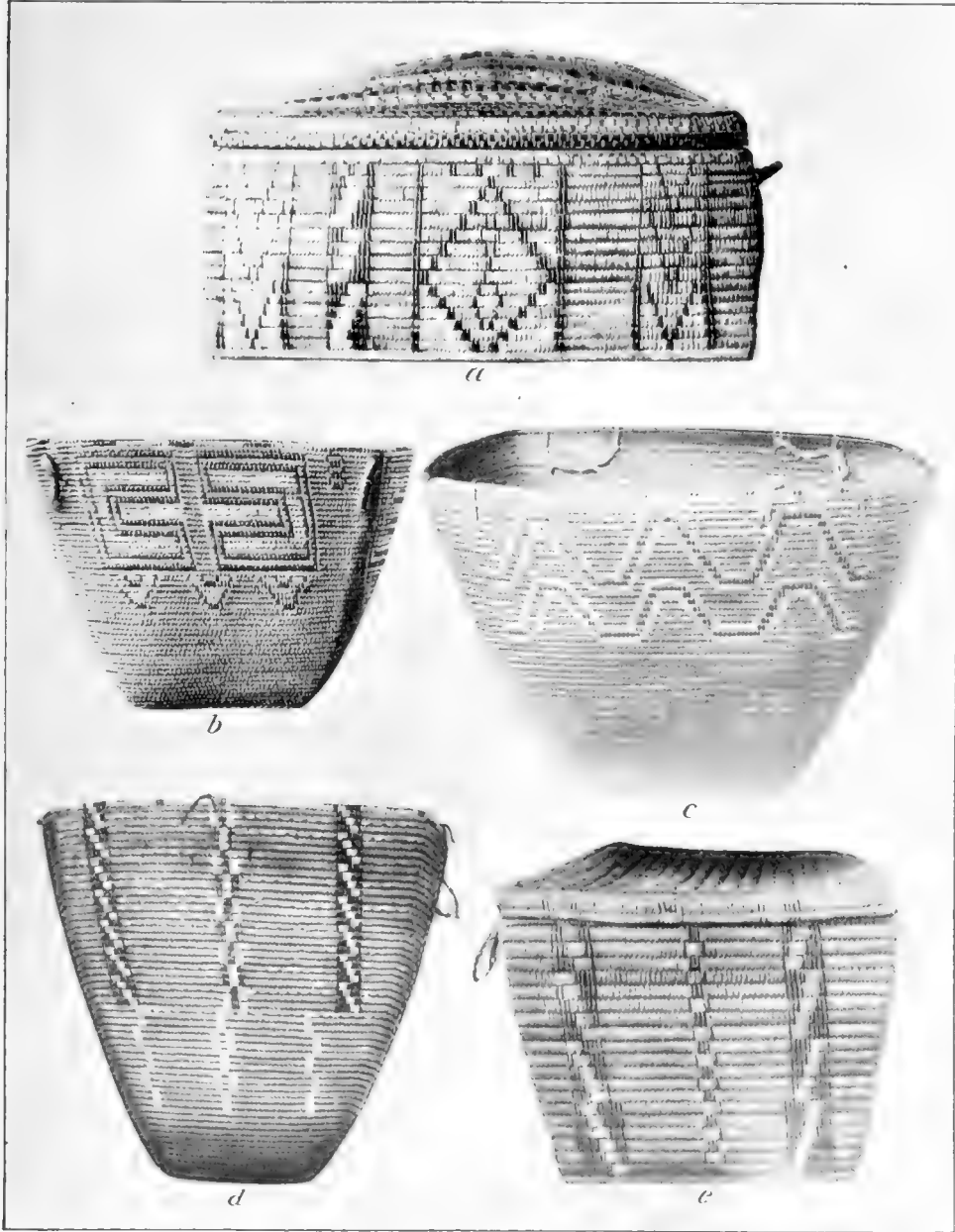
- a*, p. 336. Lillooet basket with three beaded sides
- p. 337. Irregularity in arrangement of droppers
- b*, p. 268. Treatment of zigzag at corner
- c*, p. 336. Lillooet basket with three beaded sides and one imbricated side
- d*, p. 253. Vertical lines of chevrons
- e*, pp. 284, 336. Filler
- f*, p. 337. Horizontal diagonals
- g*, pp. 230, 263, 336. Lillooet basket with beaded side
- h*, p. 284. Filler

PLATE 56

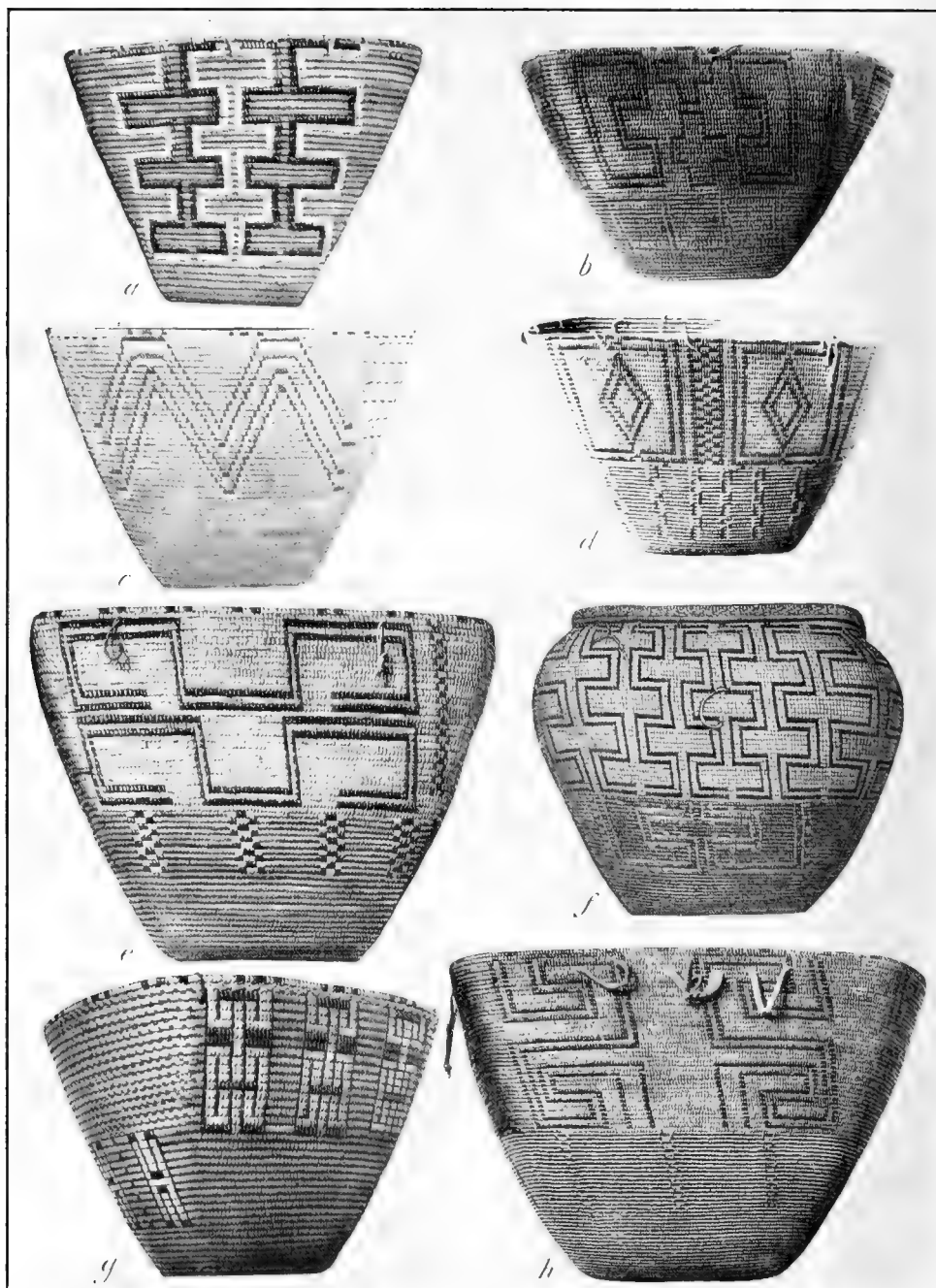
- a*, Lillooet. Trunk. *See also* Pl. 50, *a*
b, Lillooet. A.M.N.H. 16-5909. The design was not made by the Thompson, but was interpreted by the Coldwater band as a "Variety of the grave-box pattern." By the Lillooet it was considered to be a "Hatsimnalus" or "Tooth" design with "Arrowheads"
c, Lillooet or Thompson. Burden basket
d, Lillooet. A.M.N.H. 16-5903. Design, according to the Thompson: Stripes 1 and 3, "Dentalia," "Arrowhead;" stripe 2, "Standing ends" (Spuzzum, Coldwater); "Snake" (Thompson); "Notch" (Thompson, Coldwater). The beadwork between the stripes is called "Spot design" by all the bands. The pattern on the droppers is known as "Notch" (Coldwater, Thompson, Lytton). According to the Lillooet it is "Fly" and "Arrow"
e, Lillooet. Trunk

REFERENCES TO PLATE

- a*, p. 299. Lid
 p. 336. Angular shape of basket
b, p. 284. Filler
 p. 336. Lillooet basket with filler and bifurcated stitch
c, p. 337. Lillooet basket with horizontal design arrangement
d, p. 337. Lack of adjustment between two design fields
 p. 250. Rectangular design
e, p. 339. Lillooet storage basket



LILLOOET BASKETS



THOMPSON AND LILLOOET BASKETS

PLATE 57

- a*, Lillooet. A.M.N.H. 16-5905. Thompson interpretations: "Mouth" (Coldwater); "Crooked" (Thompson); "Notch," "Circling," "Crooked" (Nicola); "Variation of the grave-box pattern" (Spuzzum). Lillooet interpretation: "Fungus"
- b*, Lillooet. "Head design"
- c*, Lillooet. A.M.N.H. 16-5902. Design: "Necklace" (Thompson, Coldwater, Utā'mqt); "Zigzag," "Part of a design" (Utā'mqt); "Variation of the flying-geese pattern" (Thompson). According to the Lillooet, the name for the large pattern was not known; the rest are "Flies"
- d*, Thompson. A.M.N.H. 16.1-319. Design: "Eye" (Gladwin)
- e*, Lillooet. U.P.M.(N.A.) 1769
- f*, Lillooet. A.M.N.H. 16-5885. Design, according to the Thompson: "Mouth" (Coldwater, Utā'mqt, Spuzzum). Also, elsewhere, "Mouth," "Zigzag," "Notch." The design on the lower half of the basket is not made by the Thompson. According to the Lillooet the pattern is "Circle"
- g*, Lillooet. U.P.M.(N.A.) 1763
- h*, Lillooet. U.P.M.(N.A.) 1767

REFERENCES TO PLATE

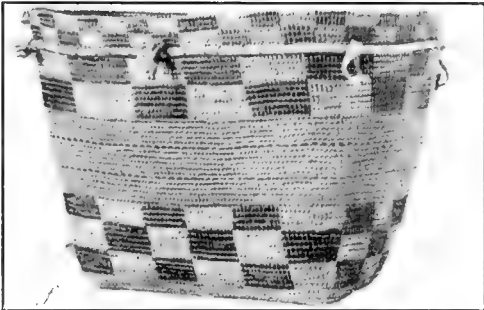
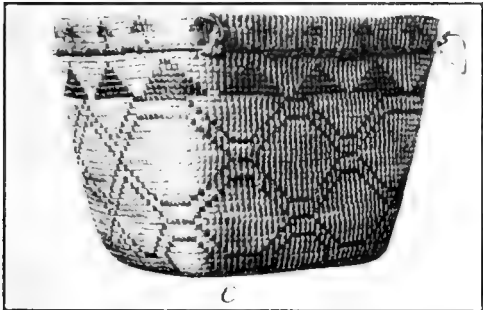
- a*, p. 262. Adjustment of figure to increasing diameter of basket.
- b*, p. 337. Adjustment of large figure to decorative field
- c*, p. 336. Lillooet basket with beading on three sides; imbrication on one side
- p. 337. Lillooet basket with horizontal design arrangement
- d*, p. 250. Rectangular design
- p. 337. Adjustment of large design to decorative field
- e*, pp. 284, 336. Filler
- f*, p. 242. Head design
- pp. 336, 339. Storage basket showing regularity of form
- g*, pp. 230, 336. Lillooet basket with beading on three sides; imbrication on the fourth side
- h*, p. 337. Adjustment of large figure to decorative field

PLATE 58

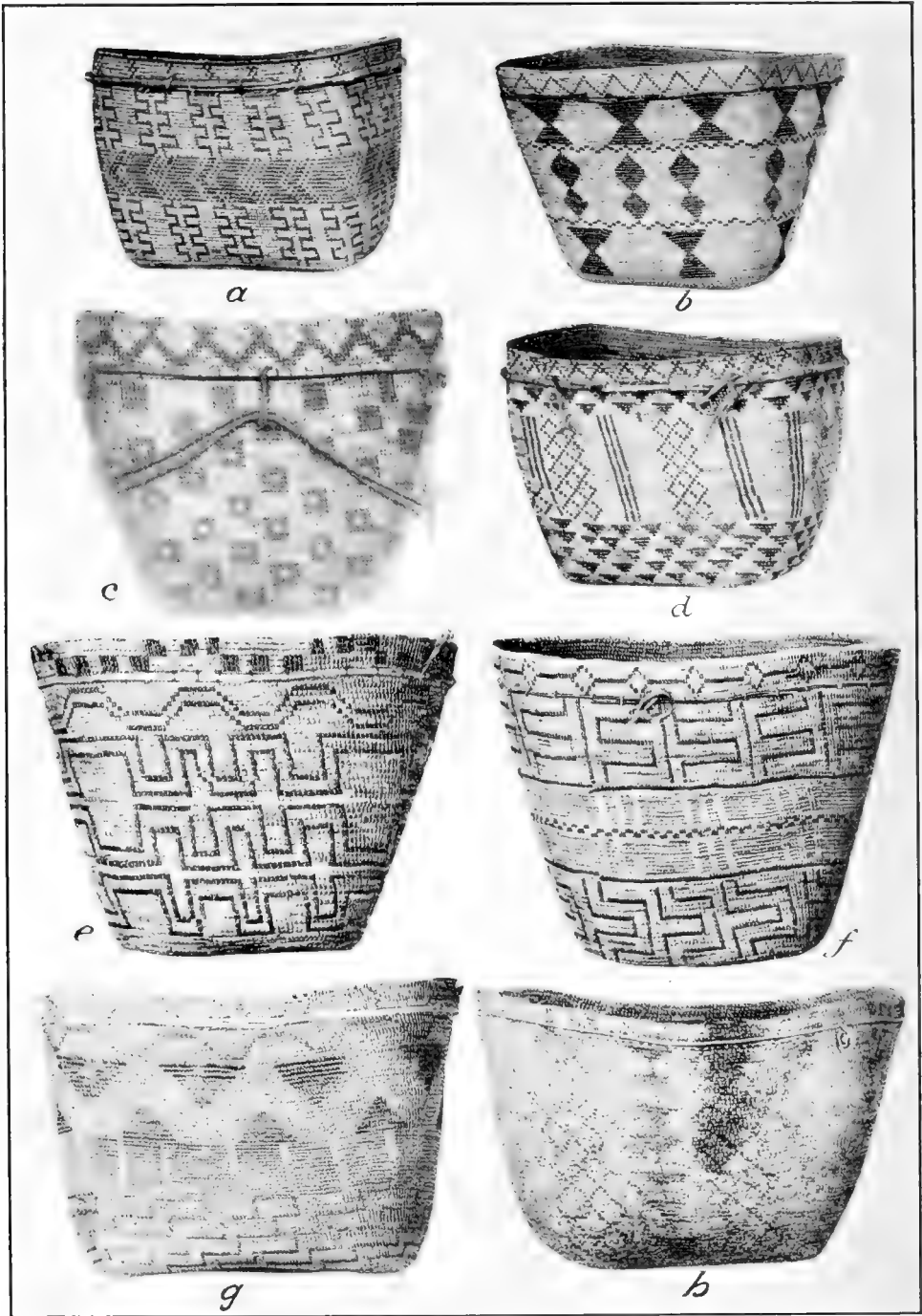
- a*, Lillooet. A.M.N.H. 16-5914. Design, according to Thompson bands: "Zigzag" (Coldwater), "Kazotlaks" (Spuzzum). The pattern of the droppers, "Half arrowhead" (Coldwater), "Xanava'in" (Thompson), "Dentalia" (Lytton). According to the Lillooet, "Arrowhead" (below), "Lightning" (above)
- b*, Lillooet. U.P.M.(N.A.) 1764
- c*, Chilcotin. U.P.M.(N.A.) 3381
- d*, Chilcotin. U.P.M.(N.A.) 3385
- e*, Chilcotin. U.P.M.(N.A.) 3407
- f*, Chilcotin.
- g*, Chilcotin. Field Museum 103054
- h*, Chilcotin. Victoria Museum, Ottawa. VI.J. 8

REFERENCES TO PLATE

- a*, p. 239. Droppers
- b*, p. 339. Lillooet storage basket
- c-h*, pp. 345-348. Discussion of Chilcotin baskets



LILLOOET AND CHILCOTIN BASKETS



CHILCOTIN BASKETS

PLATE 59

[*e-h*, Victoria Museum, Ottawa]

e, VI.J. 3

f, VI.J. 5

g, VI.J. 9

h, VI.J. 2

REFERENCES TO PLATE

a, p. 230. Chilcotin basket with design in three fields

a-h, pp. 345-348. Discussion of Chilcotin baskets

PLATE 60

a, Chilcotin. Field Museum 103050

b, Chilcotin. A.M.N.H. 16-S353. Bottom field, "Nets;" second field, "Ribs," "Ribs and backbone," according to some people; third field, "Snake," "Snake fence;" fourth field (rim), "Arrowhead"

c, Chilcotin. Victoria Museum, Ottawa. V.I.J. 6

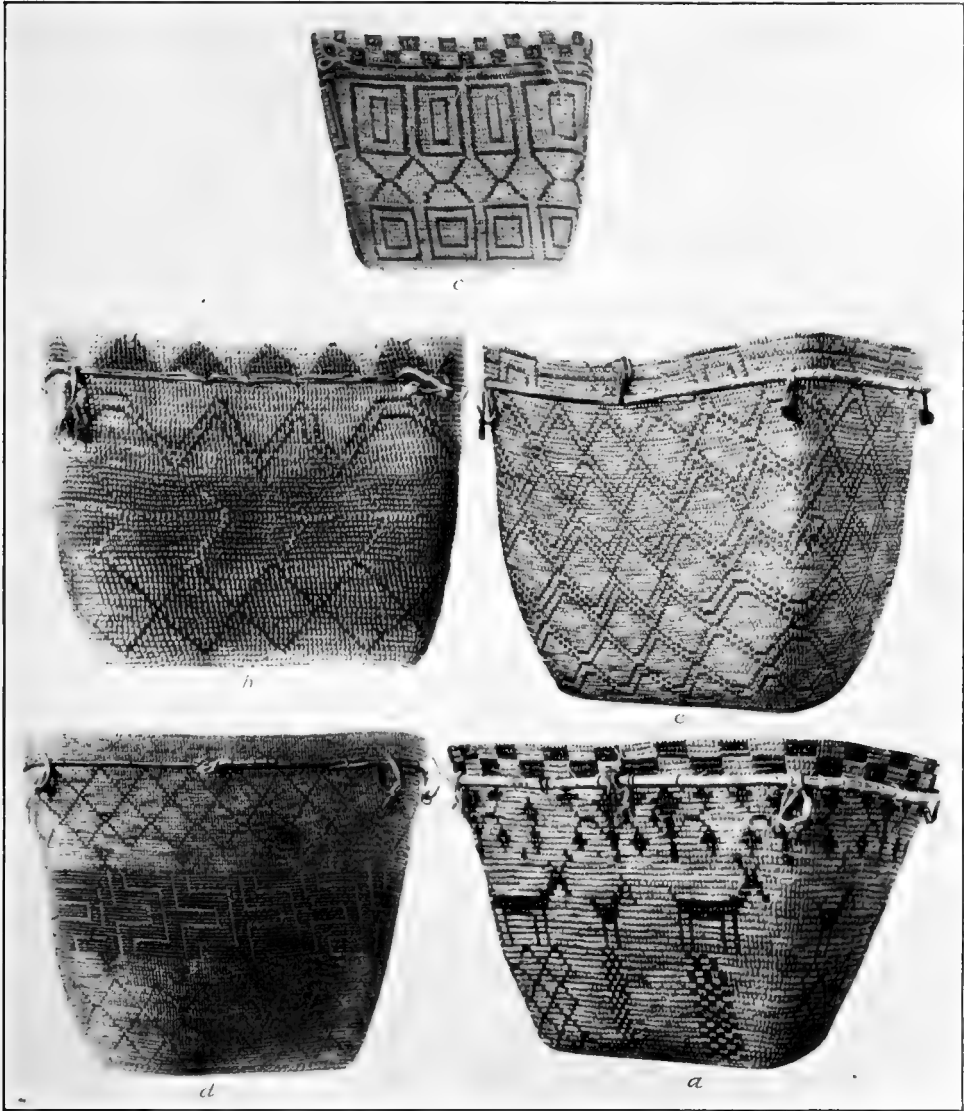
d, Chilcotin. A.M.N.H. 16-S303. Design: At the bottom, "Nets;" second field, "Arrowhead;" third field, "Sacks;" fourth field, "Arrowheads;" fifth field, "Nets;" sixth field, "Ribs" (of which the straight lines are fish ribs, the crooked, animal ribs, according to one old man). The basket maker interpreted the designs

e, Chilcotin. Field Museum 102931

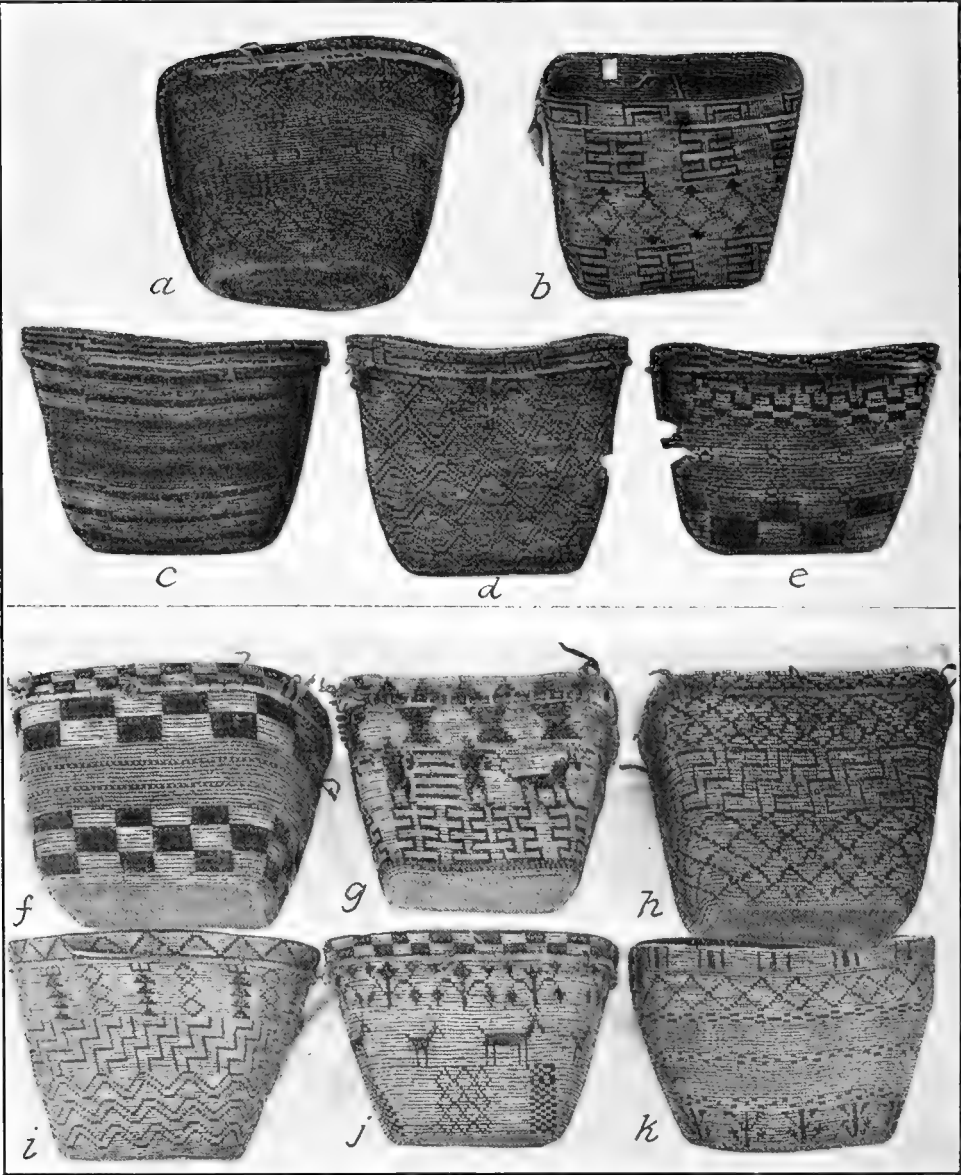
REFERENCES TO PLATE

a, p. 230. Chilcotin basket with design in three fields

a-e, pp. 345-348. Discussion of Chilcotin baskets



CHILCOTIN BASKETS



CHILCOTIN BASKETS. (PP. 345-348)



CHILCOTIN BASKETS. (PP. 345-348)

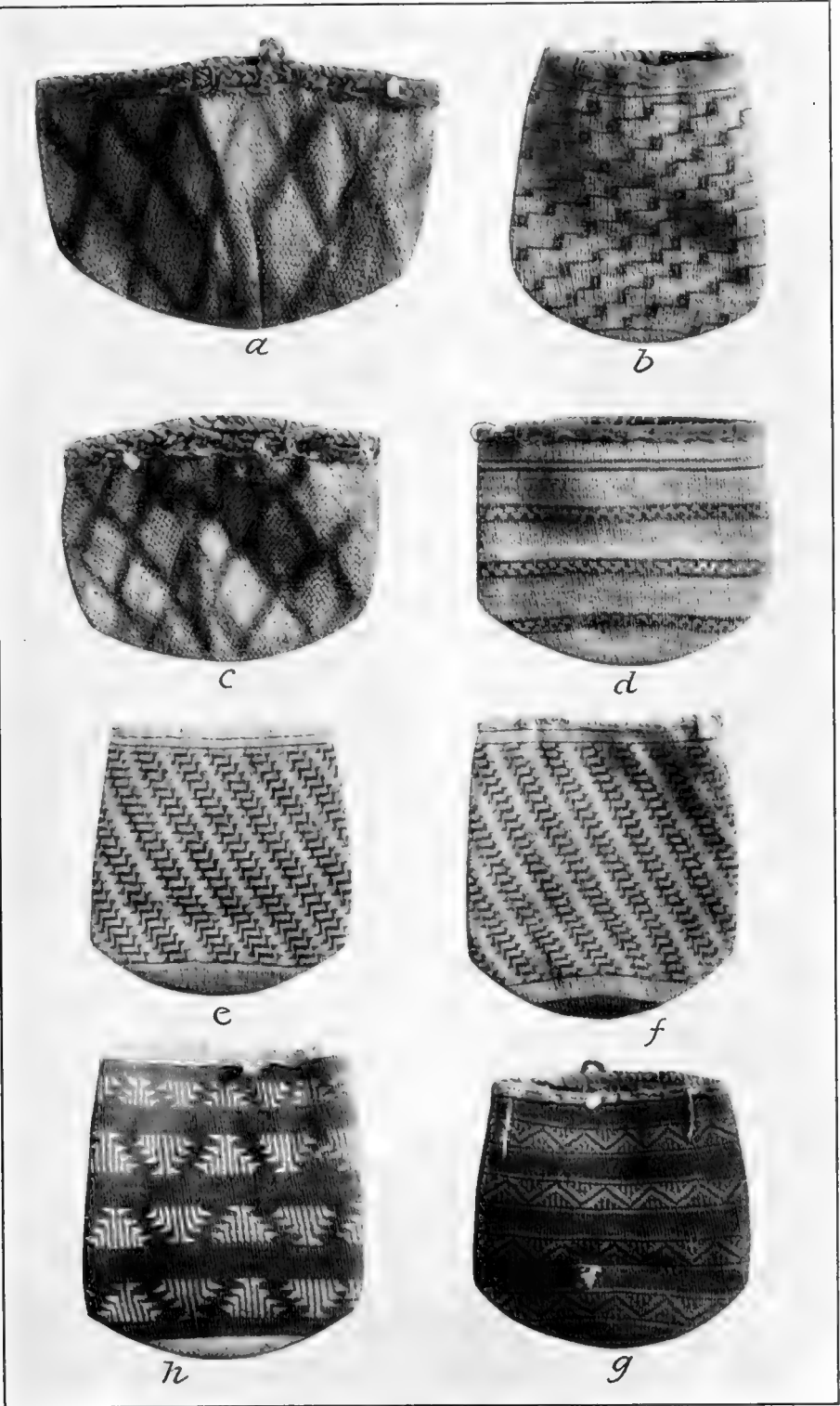
a, Sargent collection*b*, Field Museum 103055*f*, Field Museum 103056

PLATE 63

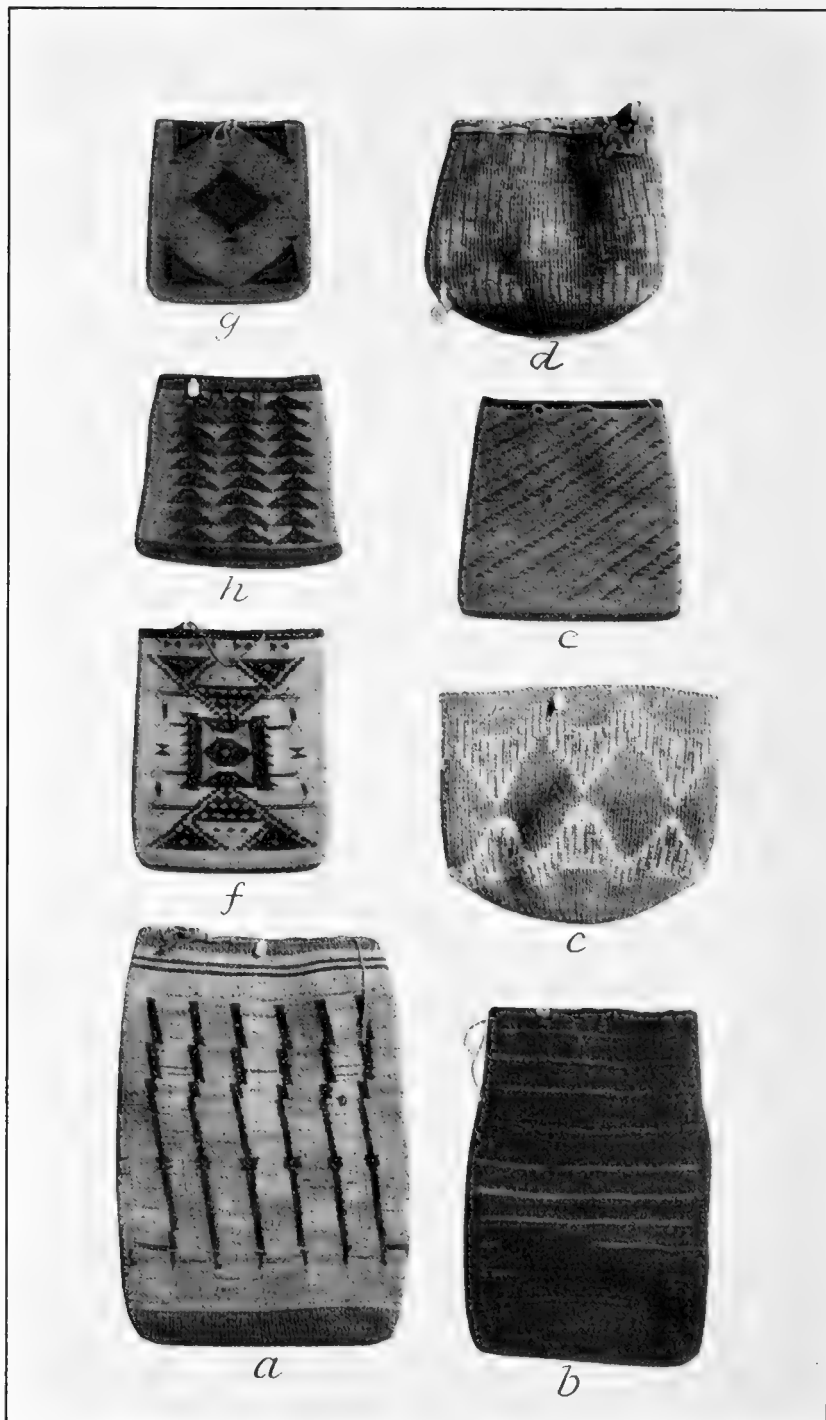
- a*, A.M.N.H. 50-1493
- b*, A.M.N.H. 50-1471
- c*, A.M.N.H. 50-1493
- d*, A.M.N.H. 50-1466
- e*, A.M.N.H. 50-1467
- g*, A.M.N.H. 50-1472
- h*, A.M.N.H. 50-1465

REFERENCES TO PLATE

- a*, p. 358. Klickitat bag with net design
- b, d, h*, pp. 354, 376. Klickitat bags
- c*, p. 358. Klickitat bag with net design
- d, e*, p. 358. Klickitat bags with gill design
- f*, p. 358. Klickitat bag with leg design
- h*, p. 358. Klickitat bag with leg design



KLICKITAT WOVEN BAGS



KLICKITAT WOVEN BAGS

PLATE 64

- a*, A.M.N.H. 50-1521
- b*, A.M.N.H. 50-1522
- c*, A.M.N.H. 50-1476
- d*, A.M.N.H. 50-1470
- e*, A.M.N.H. 50-1514
- f*, A.M.N.H. 50-1516
- g*, A.M.N.H. 50-1512
- h*, A.M.N.H. 50-1513

REFERENCES TO PLATE

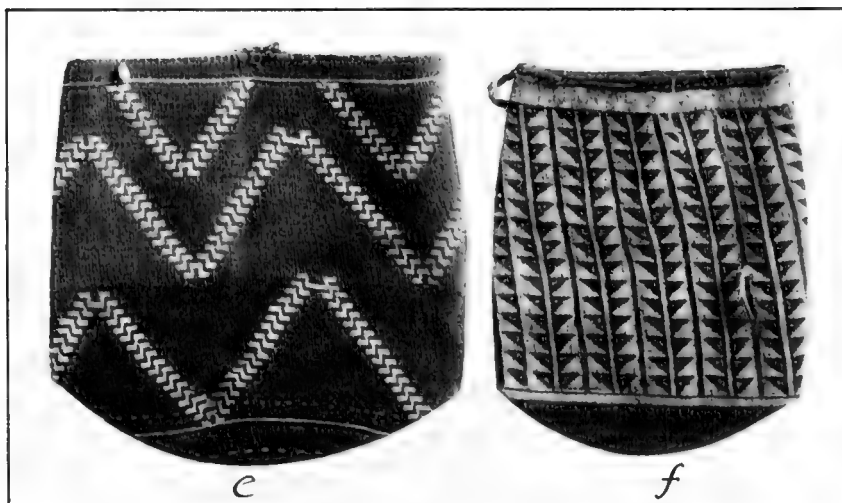
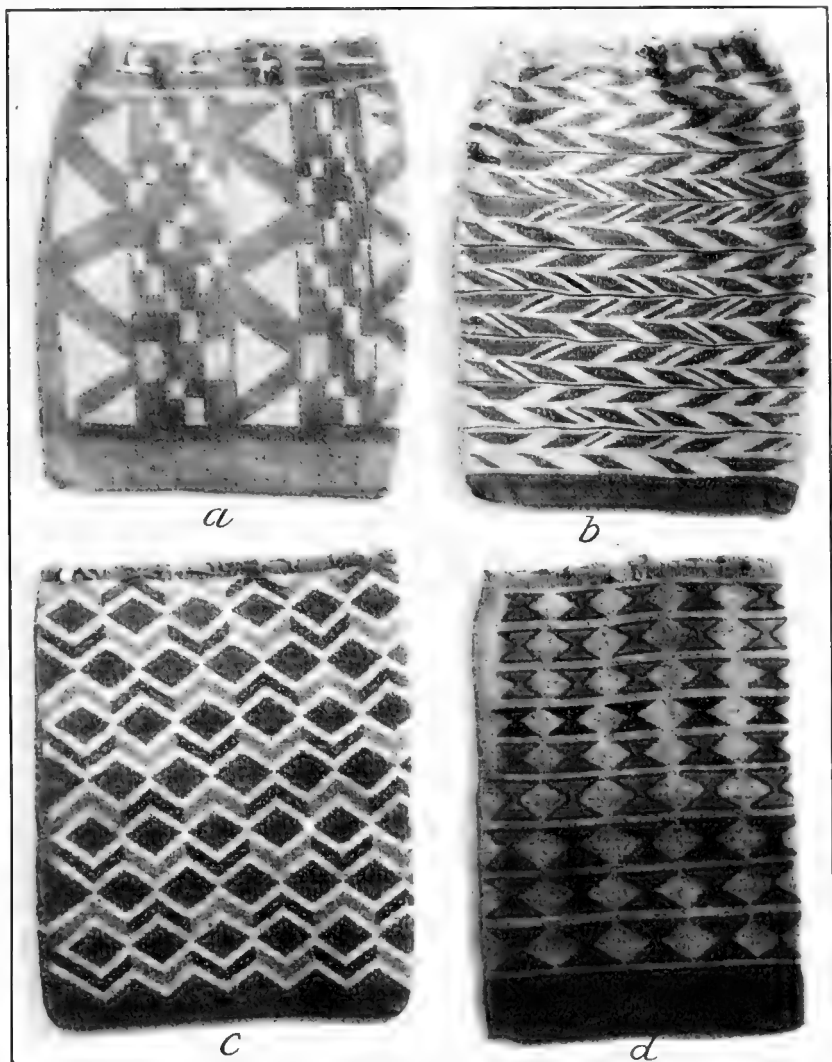
- a-h*, p. 376. Klickitat bags
- c*, p. 358. Klickitat bag with leg design

PLATE 65

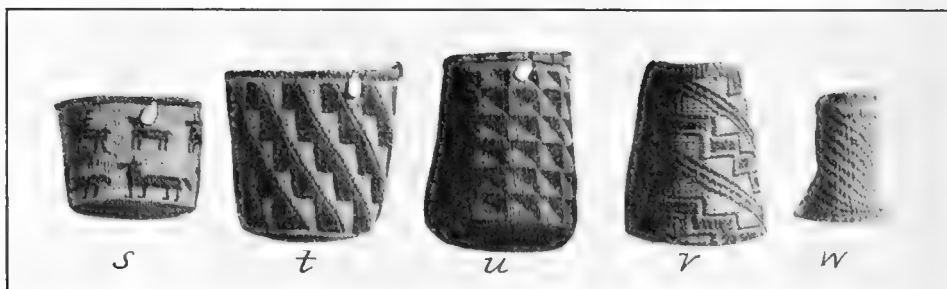
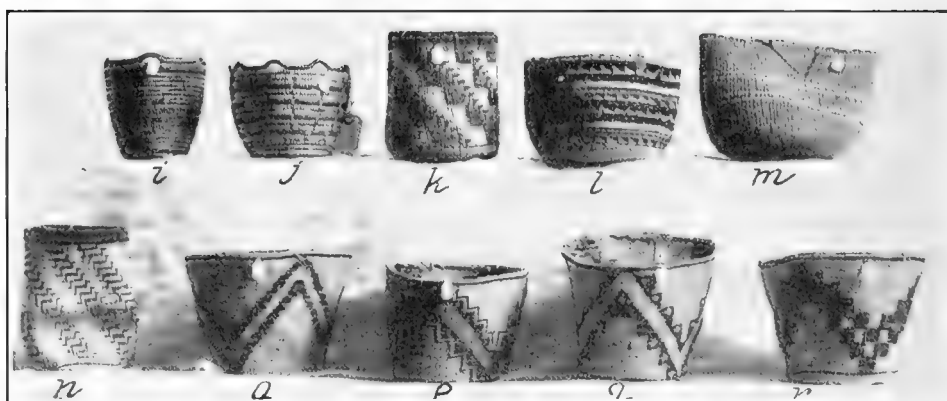
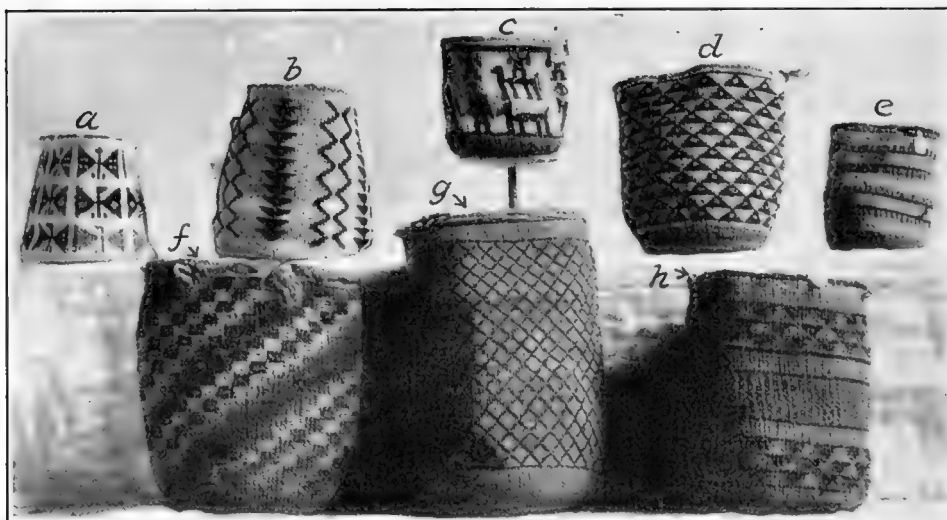
- a*, A.M.N.H. 50-1523
- b*, A.M.N.H. 50-1525
- c*, A.M.N.H. 50-1524
- d*, A.M.N.H. 16-4962
- e*, A.M.N.H. 50-1463
- f*, A.M.N.H. 50-1464

REFERENCES TO PLATE

- a-f*, p. 376. Klickitat bags
- a*, p. 358. Net and zigzag designs
- b*, p. 375. Design in horizontal arrangement
- c*, p. 358. Net design



KLICKITAT WOVEN BAGS



CLICKITAT BASKETS

PLATE 66

- a*, A.M.N.H. 50-1482. Design: "Birds"
- b*, A.M.N.H. 50-1483
- c*, A.M.N.H. 50-1460. Design: "Dogs" (?), "Horses and man"
- d*, A.M.N.H. 50-1491
- e*, A.M.N.H. 50-1490
- f*, A.M.N.H. 50-1474
- g*, A.M.N.H. 50-1469
- h*, A.M.N.H. 50-1495
- i*, A.M.N.H. 50-1462. Coiled basket
- j*, A.M.N.H. 50-1461. Coiled basket
- k*, A.M.N.H. 50-1457
- l*, A.M.N.H. 50-1459
- m*, A.M.N.H. 50-1484
- n*, A.M.N.H. 50-1480
- o*, A.M.N.H. 50-1496. Woven cap
- p*, A.M.N.H. 50-1498. Woven cap
- q*, A.M.N.H. 50-1543. Woven cap
- r*, A.M.N.H. 50-1497. Woven cap
- s*, A.M.N.H. 50-1485. Design: "Deer"
- t*, A.M.N.H. 50-1489
- u*, A.M.N.H. 50-1478
- v*, A.M.N.H. 50-1479
- w*, A.M.N.H. 50-1486

REFERENCES TO PLATE

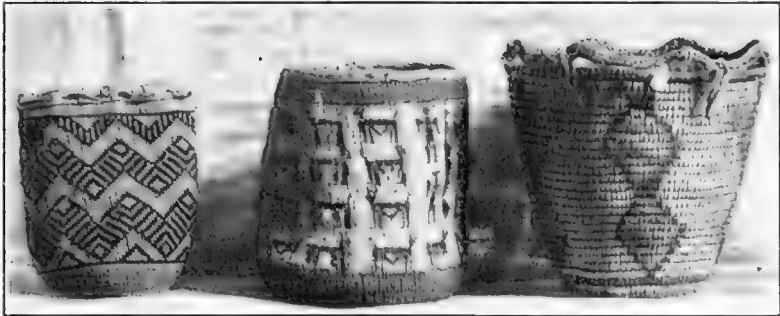
- a-h, k-n, s-w*, p. 354. Klickitat flexible baskets
- o-r*, p. 354. Basketry caps
- i, j*, p. 354. Coiled baskets
- k*, p. 358. Foot or gill design
- n*, p. 358. Gill design
- p, q, v*, p. 358. Step design

PLATE 67

a, A.M.N.H. 50-1487
b, A.M.N.H. 50-1481
c, A.M.N.H. 16.1-533
d, A.M.N.H. 50-1527
e, A.M.N.H. 50-1414
f, A.M.N.H. 50-1488
g, A.M.N.H. 50-1526
h, A.M.N.H. 50-1417
i, A.M.N.H. 50-1490
j, A.M.N.H. 50-1477
k, A.M.N.H. 50-1494
l, A.M.N.H. 50-1492
m, A.M.N.H. 50-1415
n, A.M.N.H. 50-1475
o, A.M.N.H. 50-1441
p, A.M.N.H. 50-1473
q, A.M.N.H. 50-1408
r, A.M.N.H. 50-1409
s, A.M.N.H. 50-1407

REFERENCES TO PLATE

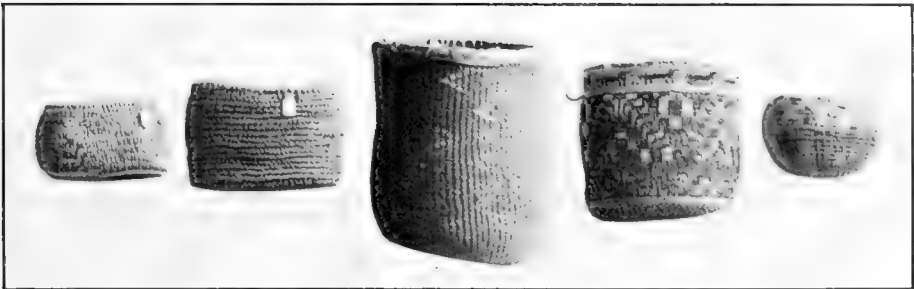
a-s, pp. 355-357. Klickitat baskets
d, p. 358. Leg design
i, p. 358. Tooth design
k, p. 358. Gill design
m, *n*, p. 358. Finger-nail design
o, p. 358. Arrowhead design



a

b

c



d

e

f

g

h

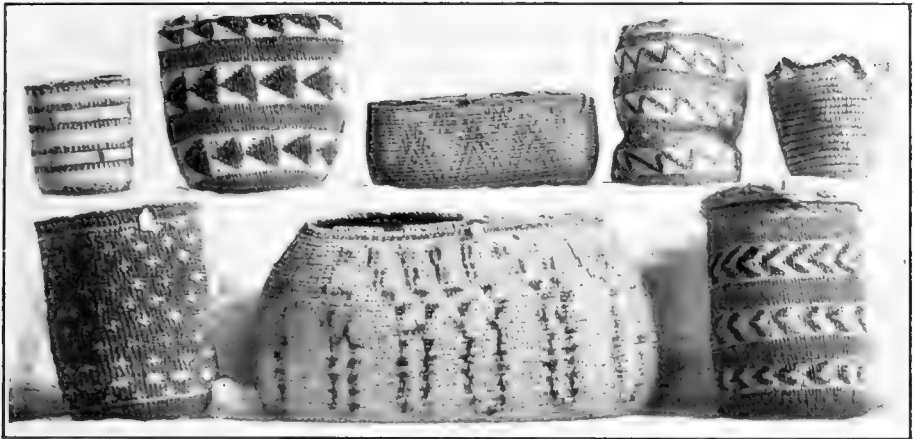
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o

p

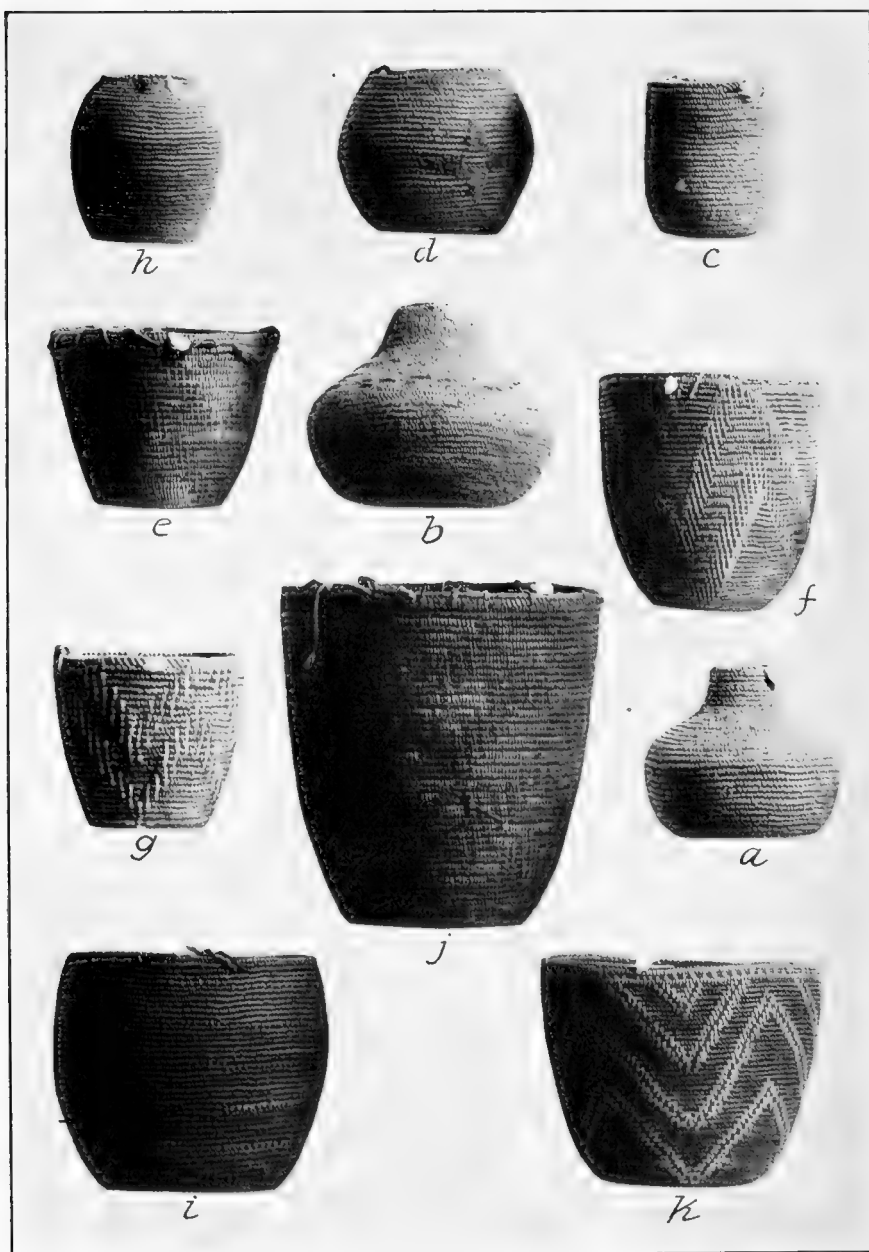


q

r

s

KLICKITAT BASKETS



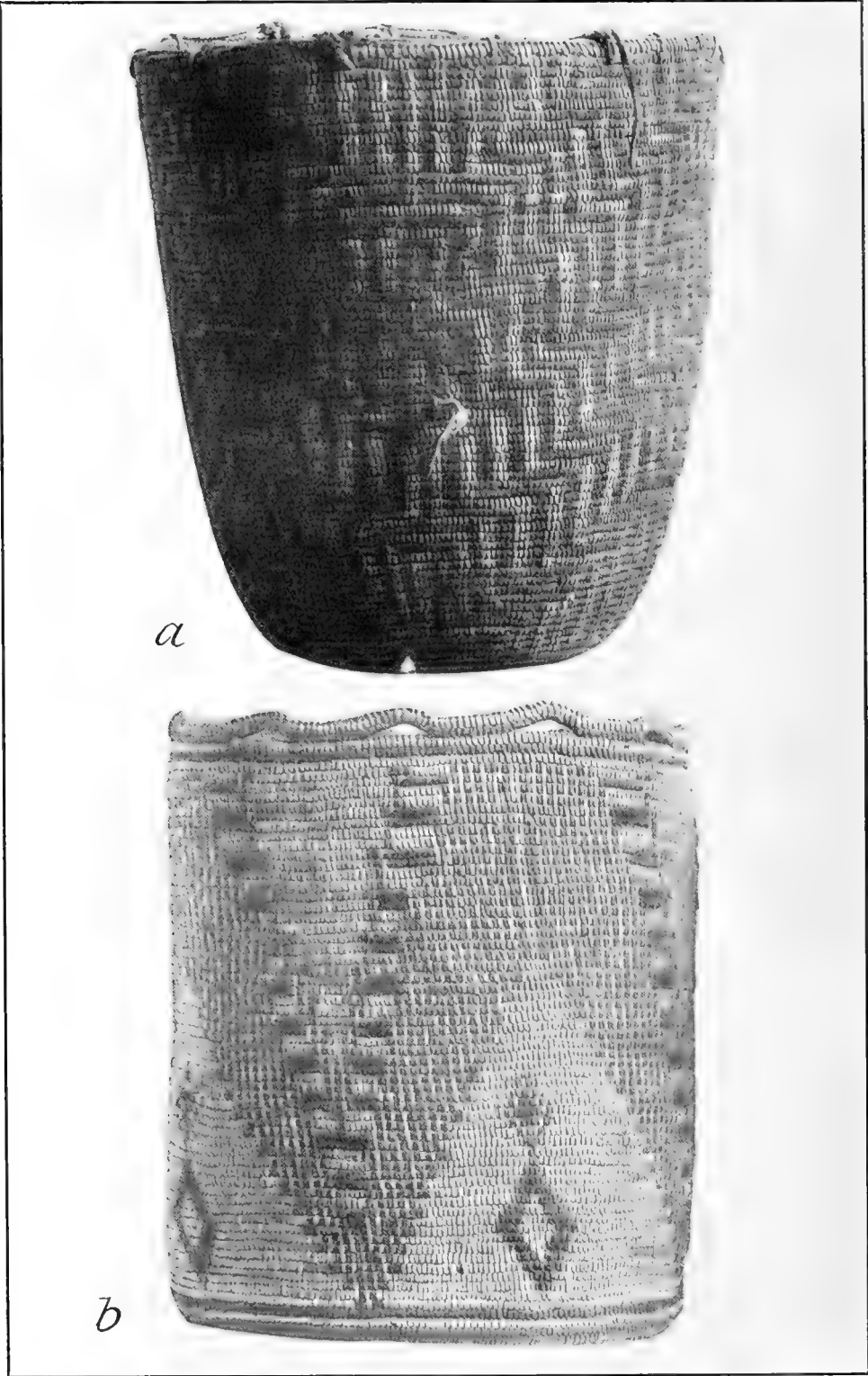
KLICKITAT BASKETS

PLATE 68

a, A.M.N.H. 50-1436
b, A.M.N.H. 50-1435
c, A.M.N.H. 50-1416
d, A.M.N.H. 50-1442
e, A.M.N.H. 50-1431
f, A.M.N.H. 50-1425
g, A.M.N.H. 50-1430
h, A.M.N.H. 50-1456
i, A.M.N.H. 50-1418
j, A.M.N.H. 50-1426
k, A.M.N.H. 50-1451

REFERENCES TO PLATE

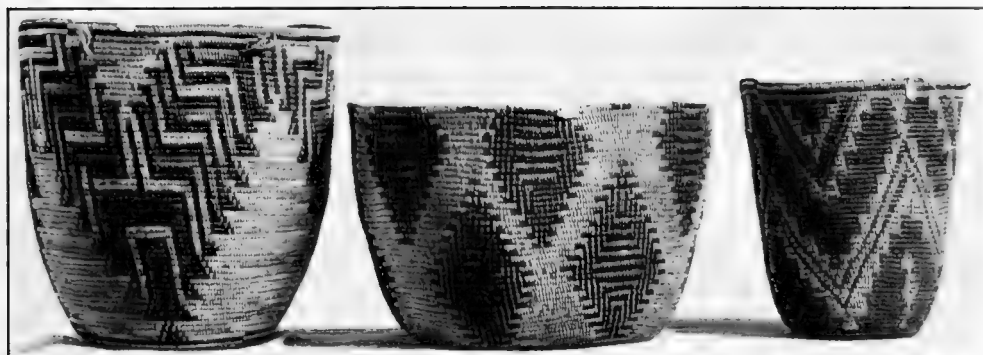
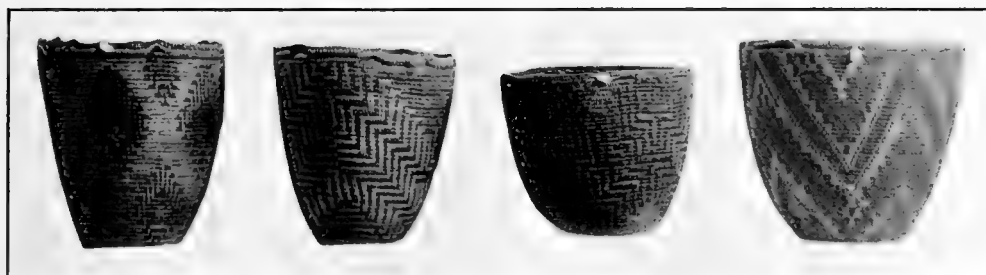
a-k, pp. 355-357. Klickitat coiled baskets
c, f, p. 358. Leg design
g, p. 358. Zigzag or scratch design
i, p. 358. Tooth design
j, p. 358. Leg design
k, p. 358. Zigzag design



KLICKITAT BASKETS. (P. 358)

a, A.M.N.H. 50-1445

b, A.M.N.H. 50-1449

*a**b**c**d**e**f**g**h**i**j*

KLICKITAT COILED BASKETS. (P. 358)

a, A.M.N.H. 50-1537
b, A.M.N.H. 50-1413
c, A.M.N.H. 50-1440
d, A.M.N.H. 50-1446

e, A.M.N.H. 50-1423
f, A.M.N.H. 50-1411
g, A.M.N.H. 50-1447

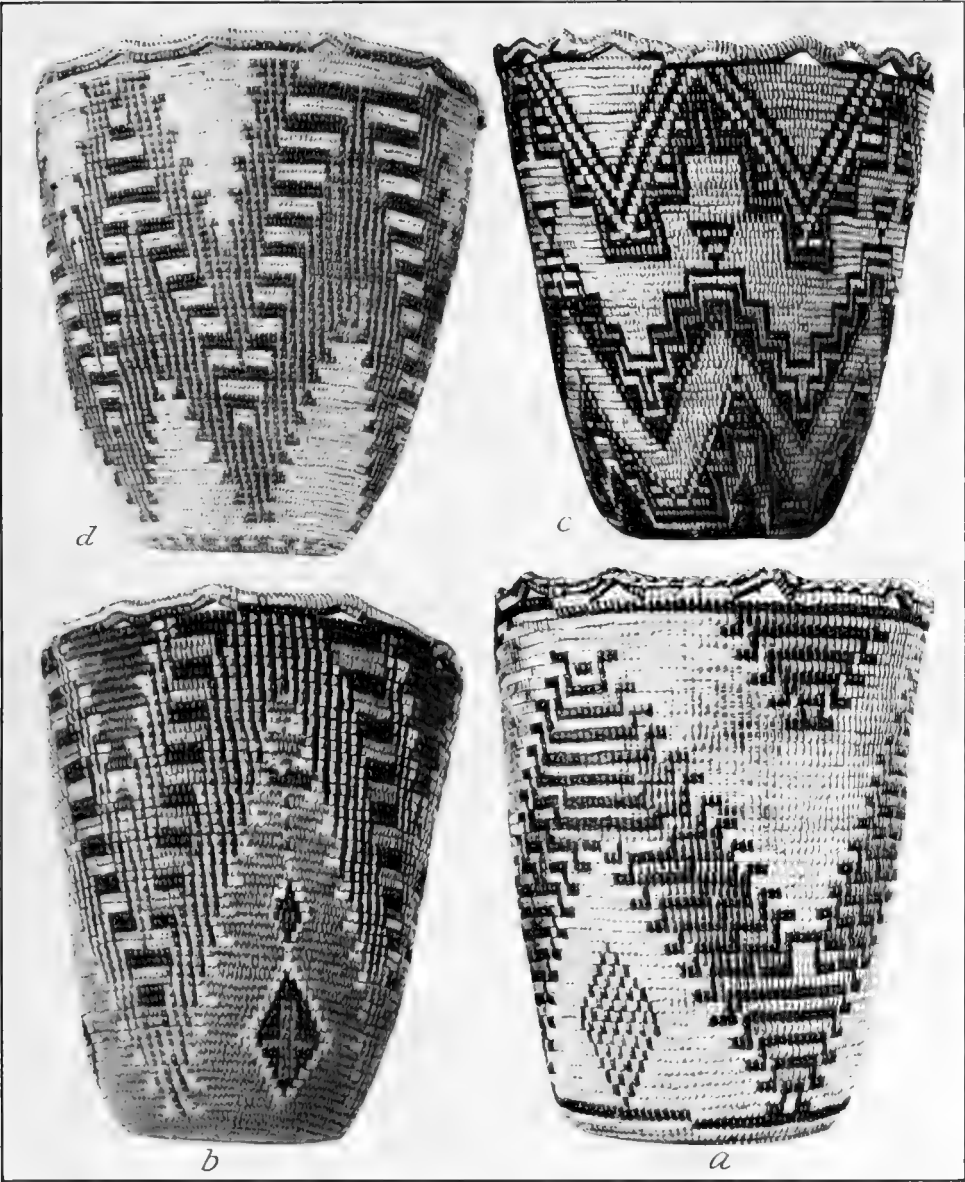
h, A.M.N.H. 50-1450
i, A.M.N.H. 50-1540
j, A.M.N.H. 50-1455



CLICKITAT BASKETS. (P. 358)

b, Sargent
c, A.M.N.H. 50-2473

d, A.M.N.H. 50-1413
e, A.M.N.H. 50-1421



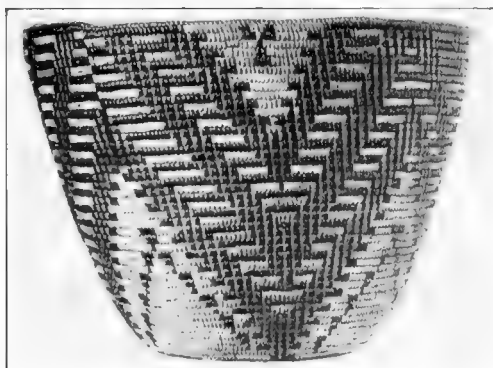
CLICKITAT BASKETS. (P 358)

a, A.M.N.H. 50-2483

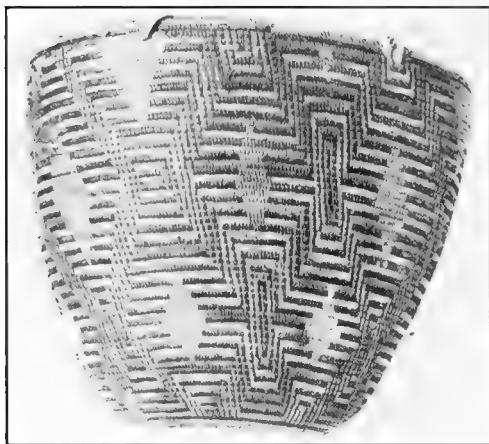
b, A.M.N.H. 50-1539

c, A.M.N.H. 50-1538

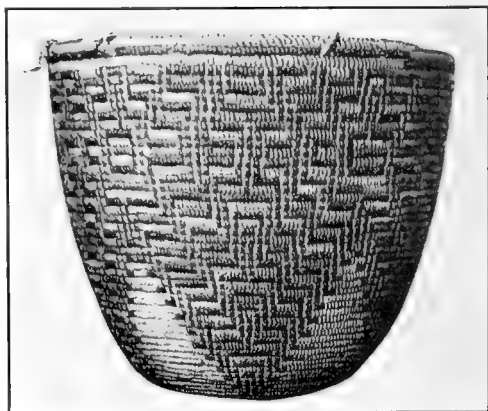
d, A.M.N.H. 50-1536



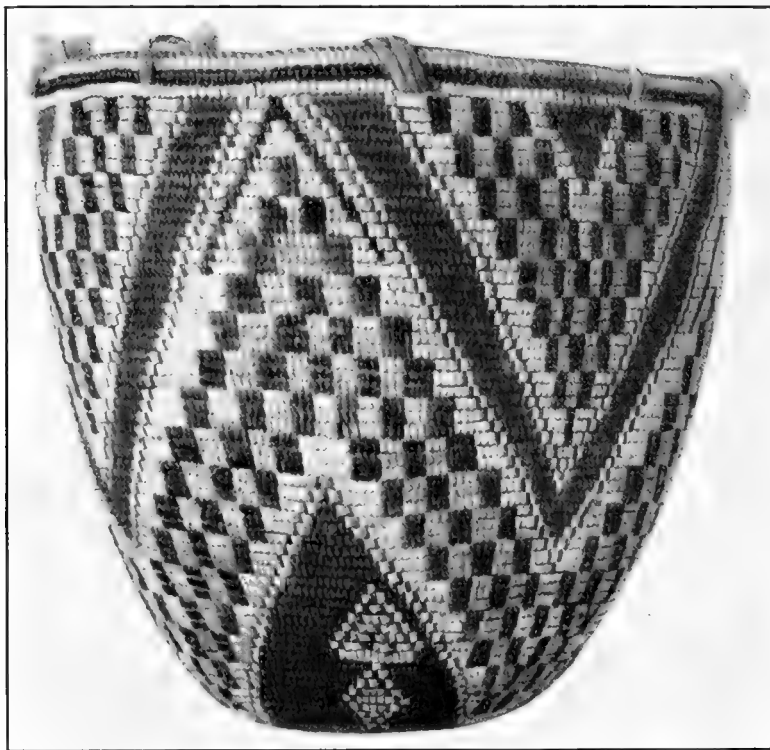
a



b



c



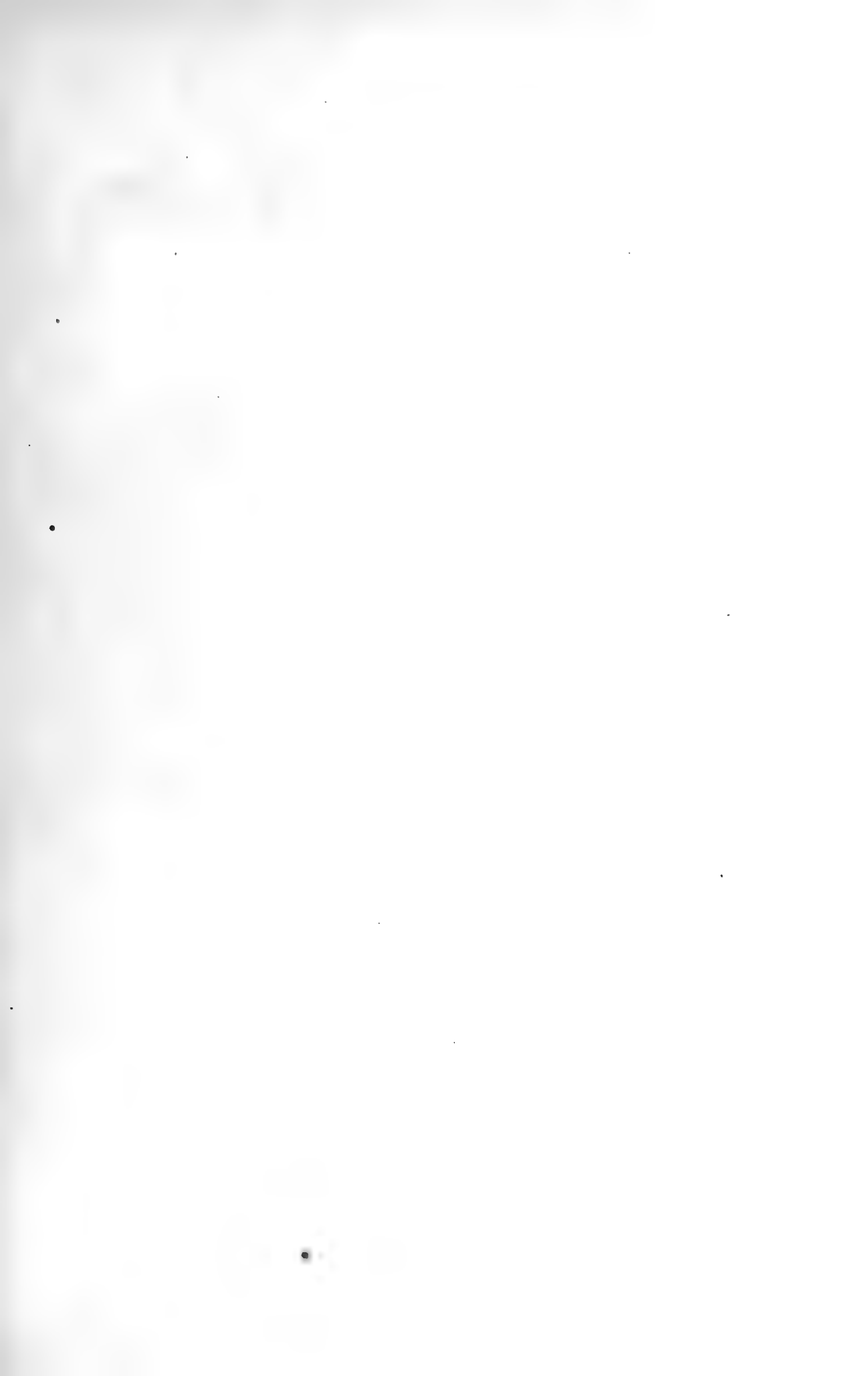
d

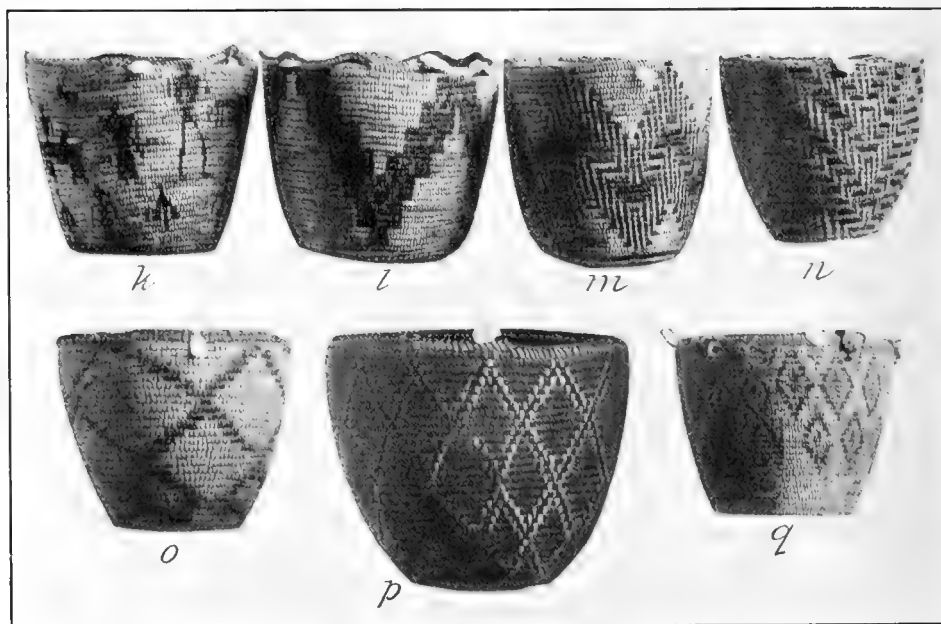
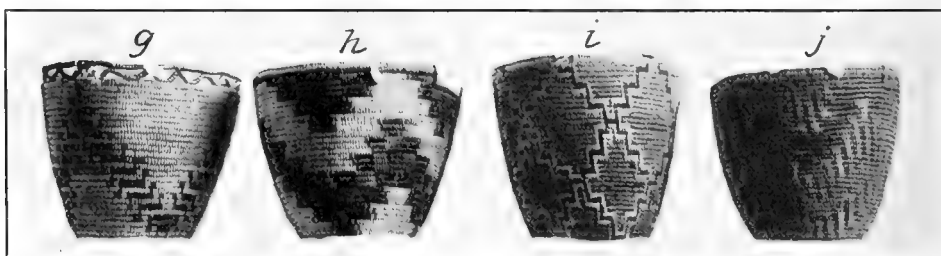
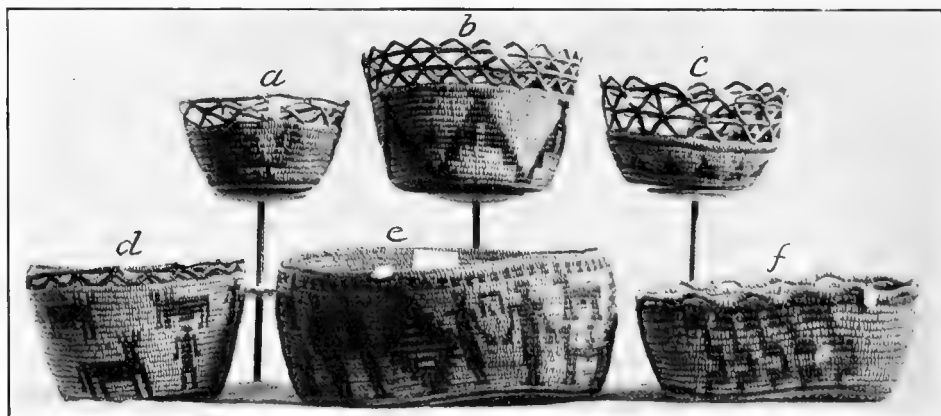
KLICKITAT BASKETS. (P. 358)

a, A.M.N.H. 50-2471

b, A.M.N.H. 50-2470

c, U.P.M.(N.A.) 1790





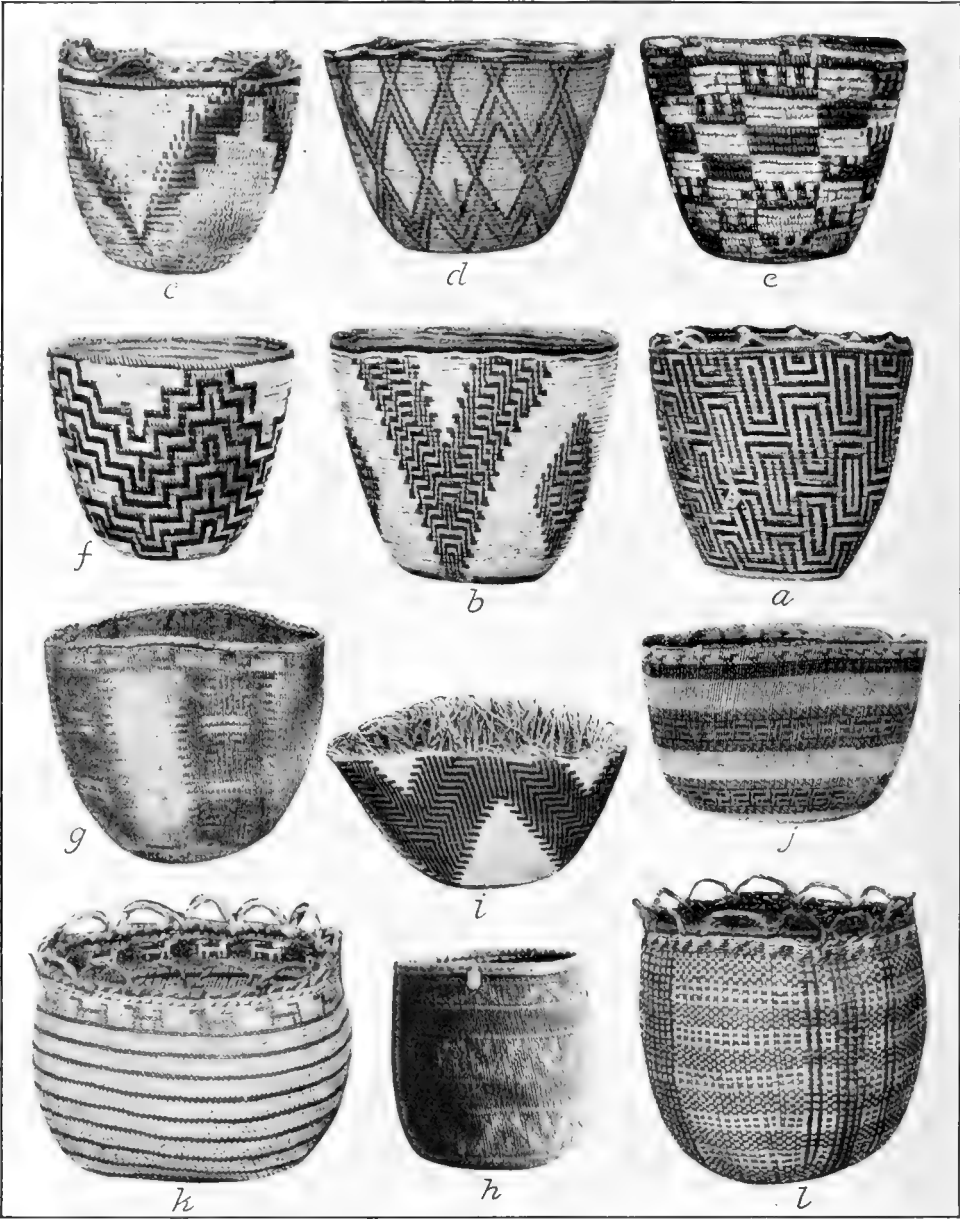
KLICKITAT COILED BASKETS

PLATE 74

- a*, A.M.N.H. 50-1433
- b*, A.M.N.H. 50-1427
- c*, A.M.N.H. 50-1443
- d*, A.M.N.H. 50-1420
- e*, A.M.N.H. 50-1412. Design: "Horses and men"
- f*, A.M.N.H. 50-1419
- g*, A.M.N.H. 50-1428
- h*, A.M.N.H. 50-1454
- i*, A.M.N.H. 50-1438
- j*, A.M.N.H. 50-1437
- k*, A.M.N.H. 50-1439
- l*, A.M.N.H. 50-1452
- m*, A.M.N.H. 50-1429
- n*, A.M.N.H. 50-1453
- o*, A.M.N.H. 50-1422
- p*, A.M.N.H. 50-1444
- q*, A.M.N.H. 50-1445

REFERENCES TO PLATE

- a-q*, p. 358. Klickitat coiled baskets
- b*, p. 358. Step design
- c*, p. 358. Arrowhead design
- d, e, k*, p. 358. People
- f, i*, p. 358. Zigzag design
- g*, p. 358. Gill or leg design
- l*, p. 358. Step design
- m*, p. 358. Gill design
- n*, p. 358. Leg design



KLICKITAT AND COAST BASKETS. (P. 358)

a-f, Klickitat coiled baskets
g, h, j, Twined baskets, Puget Sound

i, k, l, Provenience unknown





A. M. N. H. 16-4621. Utä'mat
 A. M. N. H. 16-1044. Thompson A. M. N. H. 16-4640. Utä'mat
 A. M. N. H. 16-6933. Lillooet

PLATE 76

- A.M.N.H. 16-4621. Lower Thompson basket
A.M.N.H. 16-1044. Thompson basket
A.M.N.H. 16-4640. Lower Thompson basket
A.M.N.H. 16-6933. Lillooet basket. Another view on Plate 22, b

REFERENCES TO PLATE

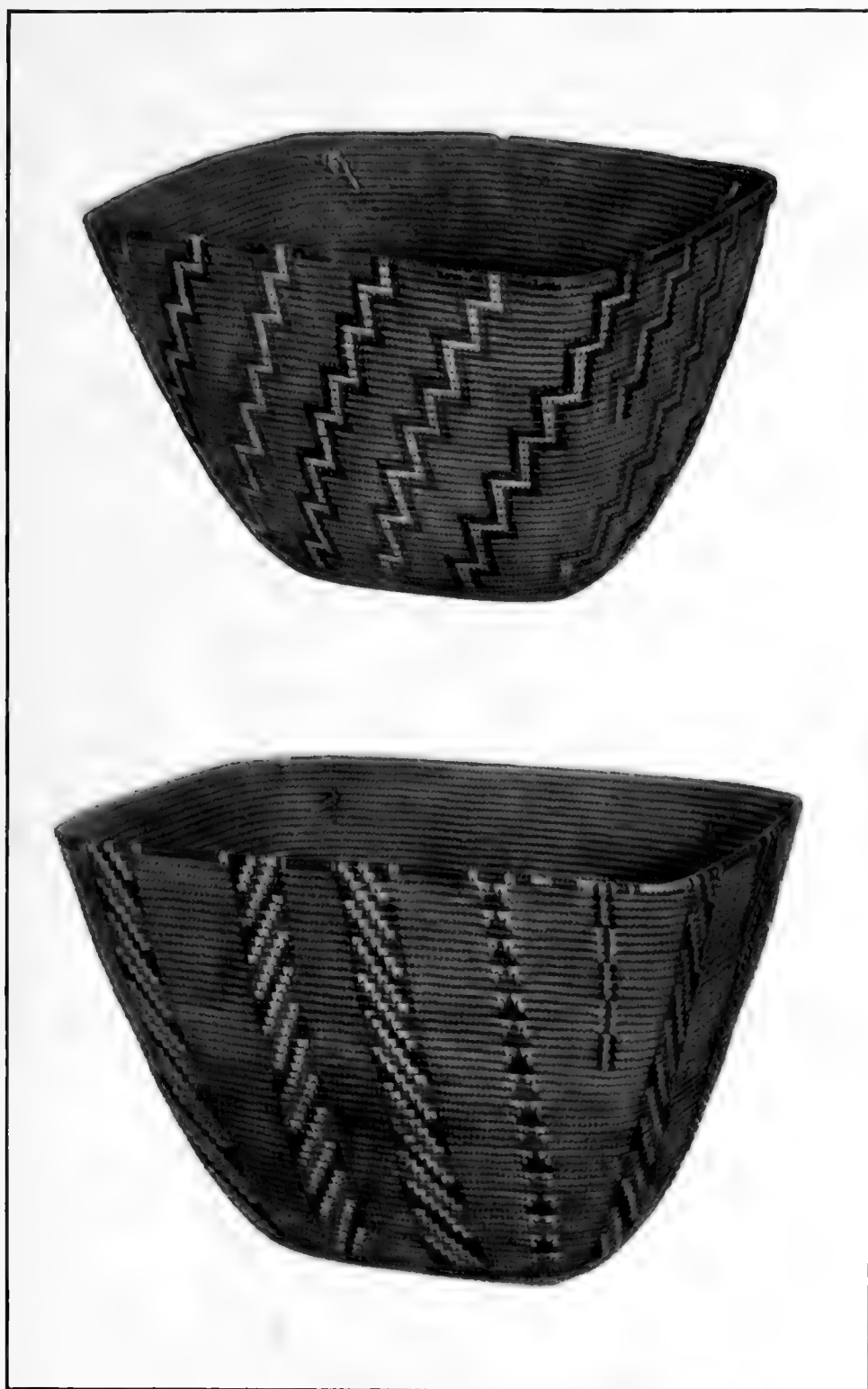
- p. 233. Two-field arrangement on Lillooet basket
p. 253. Vertical zigzag
p. 253. Diamond design
p. 255. Realistic design
p. 256. Realistic design

PLATE 77

- A.M.N.H. 16-9236. Lower Thompson basket
A.M.N.H. 16-8835. Thompson basket from the upper Fraser River

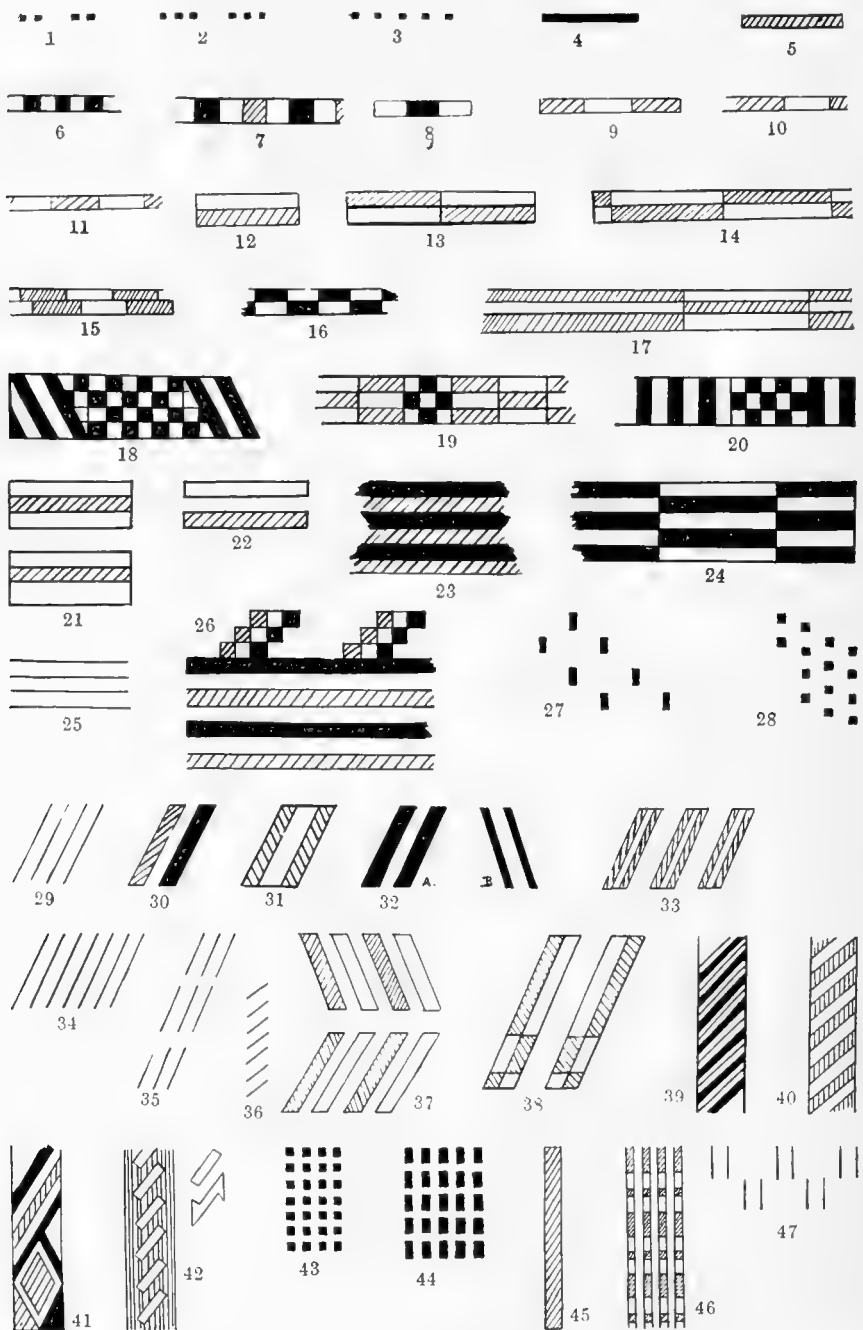
REFERENCES TO PLATE

- p. 232. Imbrication on entire field on bare background
p. 240. Diagonal distribution of designs
p. 268. Treatment of diagonal, crossing corner
p. 282. Error in placing vertical stripe



A. M. N. H. 169235 Lower Thompson
A. M. N. H. 168535 Fraser River

53666°-28—x



SKETCHES OF DESIGNS

PLATE 78

HORIZONTAL LINES

- | | |
|--|---|
| 1-3. Bead. | 12, 13. Cloud, Embroidery, Dentialia, Necklace, String of beads. |
| 4. Striped snake, Coil (?). | 14. Cloud, Embroidery, Dentialia, Necklace, String of beads, Rattlesnake. |
| 5. Cloud, Embroidery, Necklace, String of beads, Dentialia. | 15. Cloud, Embroidery, Necklace, Dentialia, Snake. |
| 6. Hair ribbon, Spot, Beads, Necklace, String of beads, Flies. | 16. Hair ribbon, Snake, Bullsnahe, Beads, Neck-lace, String of beads, Rattlesnake, Flies. |
| 7. Hair ribbon, Spot, Beads, Necklace, String of beads, Flies, Snake skin. | 17, 19. Joined, Spliced, Snake. |
| 8. Dentialia, Nose-rod, Flying bird or insect, Dragonfly. | 18, 20. Joined, Spliced. |
| 9. Cloud, Embroidery, Dentialia, Necklace, String of beads. | 21. Hairy caterpillar, Dentialia, Necklace, Opa-ile'tsa Eagle (?). |
| 10. Cloud, Dentialia, Embroidery, Hair ribbon, Necklace, String of beads. | 22, 23. Striped snake, Coil. |
| 11. Cloud, Embroidery, Dentialia, Necklace, String of beads. | 24. Dentialia, Snake or snake skin, Bullsnahe, Rattlesnake. |
| | 25. Scratch, Stripe, Lines extending out. |
| | 26. Legging with beaded fringe, Clouds appearing above the horizon, Beads (rarely). |

DIAGONAL LINES

- | | |
|--|---|
| 27, 28. Rain, Beads. | 34. (?) |
| 29. Leaning, Rainbow, Stripe, Scratch, Lines extending out. | 35. Rain. |
| 30. Leaning, Rainbow, Striped snake, Stripe (Rainbow stump). | 36. Xanaxa'in (an edible root). |
| 31. Leaning, Rainbow, Little ladder, Stripe (Rainbow stump). | 37. Xanaxa'in, Stripe, Dentialia. |
| 32. Scratches, Rainbow, Stripe, Rainbow stump. | 38. Striped snake. |
| 33. Rainbow, Little ladder, Striped snake. | 39. Stlupaist or twisted, Xanaxa'in. |
| | 40. Stlupaist or twisted, Xanaxa'in, Dentialia. |
| | 41. Arrowhead, twisted, Xanaxa'in. |
| | 42. Half arrowhead, Xanaxa'in, Dentialia. |

VERTICAL LINES

- | | |
|--|--|
| 43, 44. Rain, Spot, Bead. | 46. Rain, Spot, Bead, Necklace, Dentialia. |
| 45. Woodworm, Hair ribbon, Snake, Caterpillar, Spot, Necklace. | 47. Frame, Legging. |

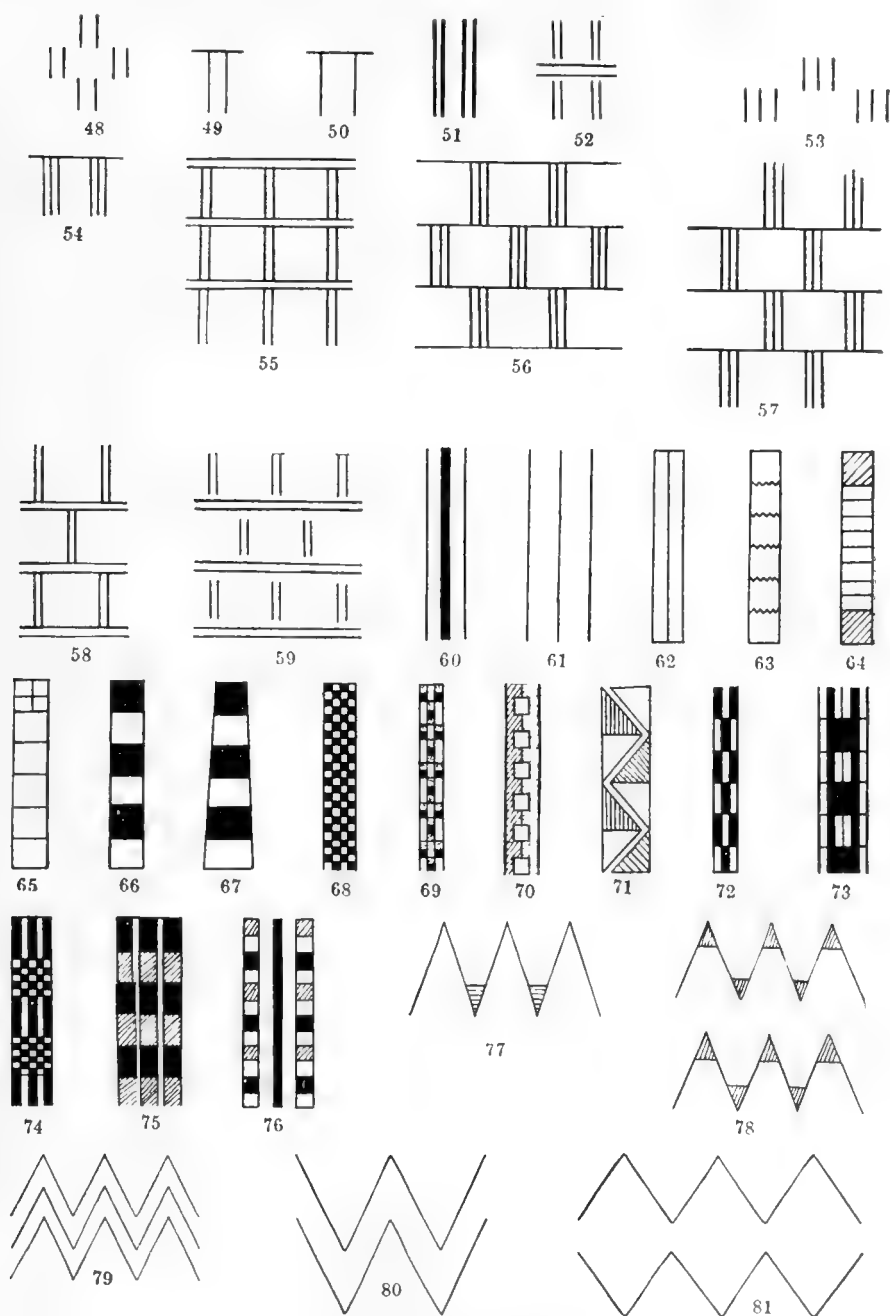
PLATE 79

VERTICAL LINES

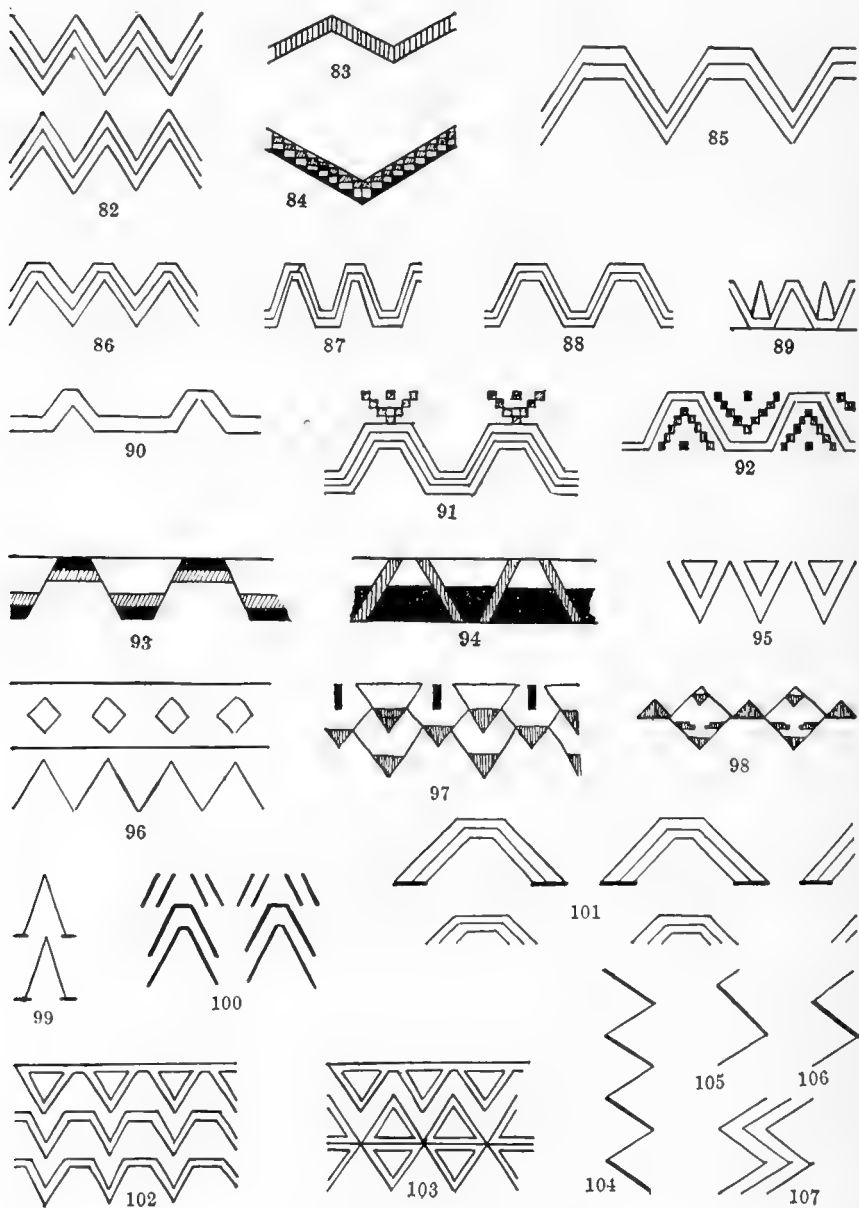
- | | |
|--|--|
| 48, 49. Legging. | 67. Snake, Bullsna ^k e, Snake's head (rarely), Wood- |
| 50. Girl's frame (tsexa'ksten), Legging. | worm. |
| 51, 52 Legging. | 68. Snake, Bullsna ^k e, Bead, Fly, Necklace, String |
| 53. False legging. | of beads. |
| 54. False legging, Striped legging. | 69. Snake, Snake skin, Necklace. |
| 55-59. Dentalia and Embroidery. | 70. Snake, Snake skin. |
| 60. (?) | 71. Snake, Snake skin, Combined snake track and |
| 61. Lines extending out, Stripe, Scratch. | half arrowhead. |
| 62. Striped snake. | 72. Snake, Rattlesna ^k e, Gartersna ^k e, Necklace. |
| 63. Snake, Ladder, Hair ribbon, Woodworm. | 73, 74. Bead, Dentalia, Necklace, Rain. |
| 64, 65. Snake, Caterpillar, Hair ribbon, Woodworm. | 75. Bead, Dentalia, Rain (rarely), Necklace. |
| 66. Snake, Bull snake. | 76. Bead, Necklace. |

DIAGONAL ZIGZAG, HORIZONTAL

- | | |
|---|--|
| 77. Necklace of dentalia or tubers(?), Beads, Pend- | 80. Snake, Snake track, Mountain tops, Zigzag, |
| ants. | Caterpillar, Pack strap. |
| 78. Arrowhead, Zigzag, Necklace with pendants. | 81. Snake, Snake track, Pack strap, Mountain, |
| 79. Snake, Snake track, Mountain tops, Zigzag, | Caterpillar. |
| Caterpillar, Pack strap. | |



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 80

DIAGONAL ZIGZAG, HORIZONTAL

- | | |
|--|--|
| <p>82. Pack strap (connected points or open middles), Rainbow connected. Necklace (rarely), Zigzag, Meandering, Snake.</p> <p>83. Snake, Bullsnake.</p> <p>84. Necklace, Bead.</p> <p>85. Rainbow, Necklace, Part of grave box (rare), Grasshopper.</p> <p>86. Zigzag (flat or wide points), Half circles connected, Going back and forth in half circles, Mountains (rarely), Snake tracks (very rare), Deer fence.</p> <p>87. Grave box.</p> <p>88. Rainbow, Necklace, Part of grave box (rarely), Grasshopper.</p> <p>89, 90. Mountains.</p> <p>91, 92. Rainbow and cloud, Cloud over mountain, Embroidery, Necklace and pendants, Beads.</p> | <p>93, 94. Cloud (Nicola).</p> <p>95. Deer fence with snares.</p> <p>96. Indian fortress on top of a rock.¹</p> <p>97. Head band, Embroidery on the fronts and backs of dresses, Net, Necklace.</p> <p>98. Necklace, Variety of net, Embroidery, Dress design.</p> <p>99. Dress design.</p> <p>100. Necklace, Rainbow, Part of earth lodge (rarely), Dress design.</p> <p>101. Necklace, Rainbow (Lytton), Half circle, Embroidery, Half of a design, Part of a grave box (rare), Dress design, Grasshopper.</p> <p>102, 103. Arrow points, Necklace.</p> |
|--|--|

DIAGONAL ZIGZAG, VERTICAL

- | | |
|---|---|
| <p>104. Trail, Snake tracks, Snake, Contorting, Ascending zigzag.</p> <p>105. Grasshopper, Grasshopper leg.</p> | <p>106. Wave (two turns), Zigzag, Grasshopper.</p> <p>107. Wave (two turns), Zigzag, Grasshopper.</p> |
|---|---|

¹ This is supposed to have been in the Stlaxa'lux country. It is surrounded by a wall of logs and stones. The diamonds represent gun holes.

PLATE 81

DIAGONAL ZIGZAG, VERTICAL

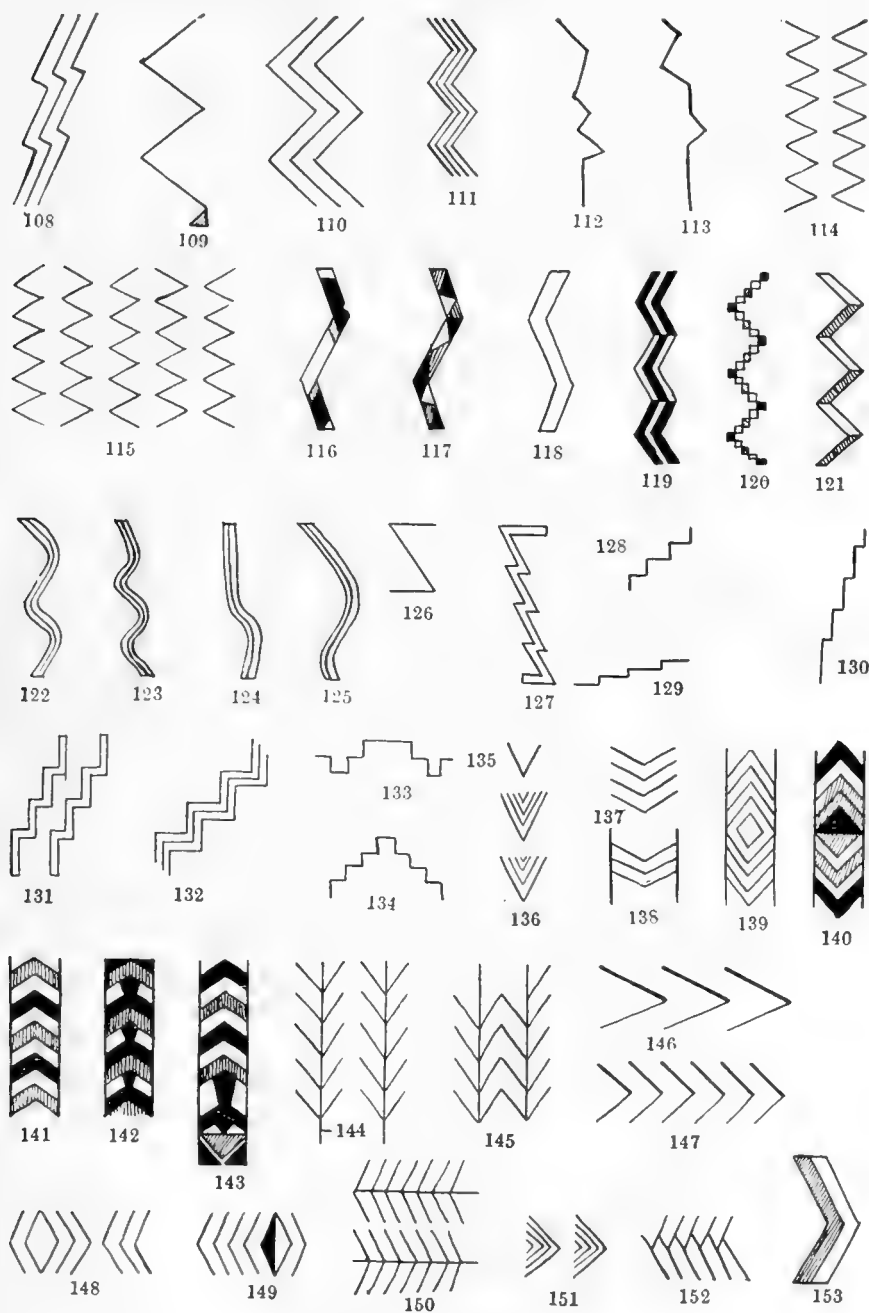
- | | |
|---|---|
| <p>108. Wave (short turn), Zigzag, Grasshopper.
 109. Wave (three turns), Zigzag, Lightning (rarely), Snake or Snake track.
 110. Wave (four turns), Zigzag, Snake or Snake track.
 111. Blanket, Zigzag (up and down), Snake or Snake track.
 112, 113. Caterpillar, Lightning (rarely), Grasshopper, Woodworm borings.
 114, 115. Trail, Parflèche (rarely), Ascending zigzag, Snake, Snake track, Contracted middles, Pack strap (rarely).</p> | <p>116, 117. Snake, Bullsnake, Caterpillar, Garter-snake.
 118. Snake, Bullsnake, Caterpillar, Gartersnake, Striped snake.
 119. Snake, Caterpillar, Gartersnake, Striped snake.
 120. Snake, Bead necklace, Caterpillar.
 121. Snake, Woodworm, Caterpillar.
 122-125. Striped snake.
 126, 127. (?)</p> |
|---|---|

THE ZIGZAG COMPOSED OF VERTICAL AND HORIZONTAL SECTIONS

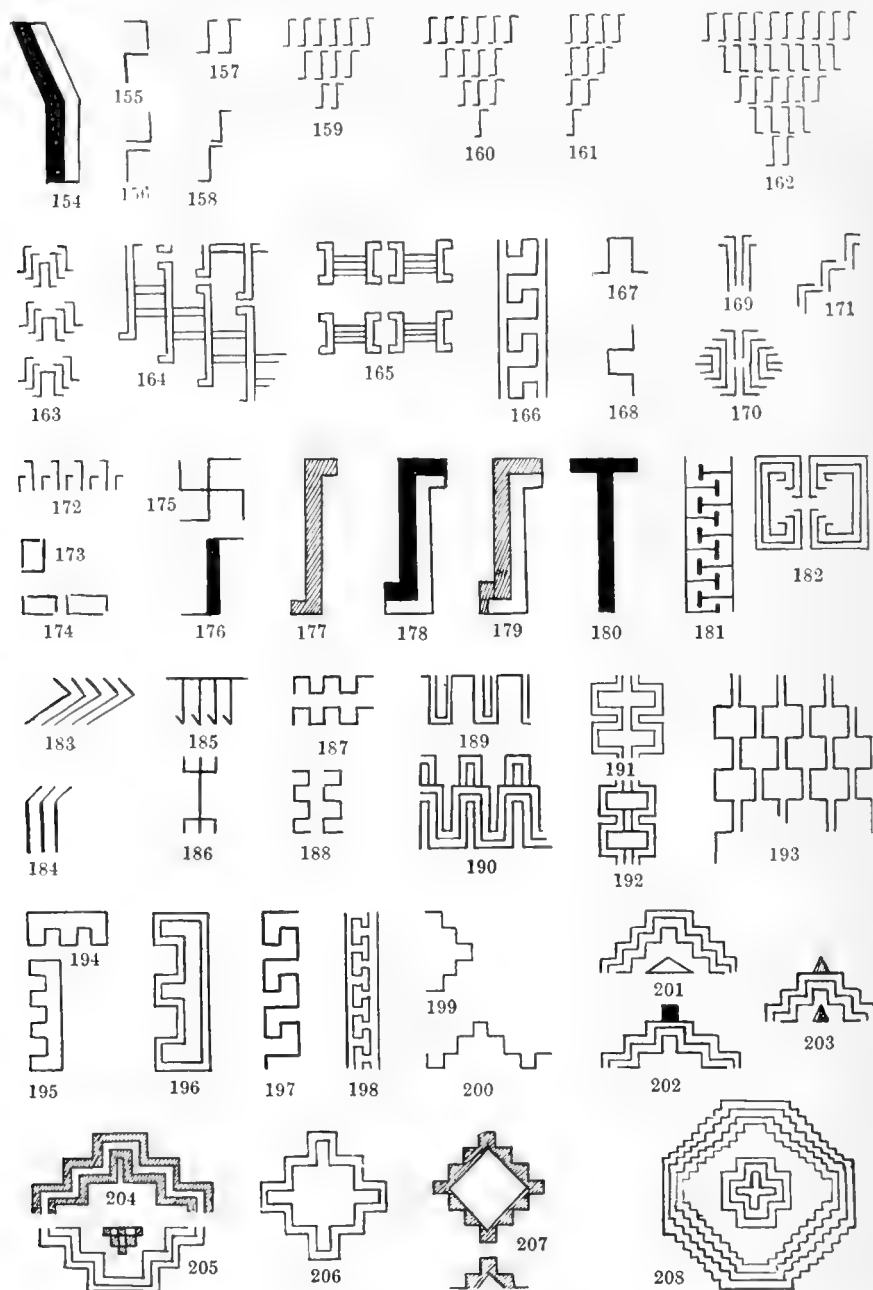
- | | |
|---|--|
| <p>128, 129. Snake and snake track (rarely), Caterpillar, Grasshopper.
 130. Snake and snake track (rarely), Caterpillar, Grasshopper, Lightning.</p> | <p>131. Snake and snake track (rarely), Caterpillar.
 132. Snake track.
 133. Mountain, Zigzag, Necklace.
 134. Mountain, Zigzag, Necklace, Caterpillar.</p> |
|---|--|

THE CHEVRON

- | | |
|---|--|
| <p>135. Butterfly, Wing, Arrow point, Angle.
 136. Butterfly wing, Butterfly.
 137. Necklace, Butterfly (rarely), Broken or bent middle.
 138. Angle, Arrow point.
 139, 140. Arrow point.
 141. Arrowhead (heaped up or overlapping).
 142. Arrowhead.
 143. Arrowhead.
 144. Tree, Fir branch, Branch.
 145. Tree, Fir branch.
 146. Waves (one turn), Angle, Arrowhead, Part of zigzag (Utá'mqt), Grasshopper.</p> | <p>147. Bent leg, Broken back, Broken rib, Rib, Grasshopper.
 148. Bent leg, Broken back, Grasshopper, Rib.
 149. Angle, Arrow point.
 150. Fish backbone (Spuzzum).
 151. Butterfly, Butterfly wing.
 152. Broken back, Bent leg, Fishhook, Hook, Crook, Hooked end, Cross, Head, Root digger.
 153. Rainbow (half or stumps) (rare), Bent middle, Bent back, Bent leg, Striped snake (rare).</p> |
|---|--|



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 82

THE CHEVRON

154. Rainbow (half or stumps) (rare), Bent middle, Bent back, Bent leg, Striped snake (rare).

THE RIGHT ANGLE WITH ONE LONG SIDE

- | | |
|--|--|
| 155. (?) | 175. Caterpillars crossed. |
| 156. Leg, Foot, Grasshopper. | 176. Caterpillar. |
| 157, 158. Leg, Foot, Caterpillar, Bent knee. | 177. Caterpillar, Double hook, Double crook, Angle, Bent leg. |
| 159-162. Leg (variation), Foot (variation), Caterpillar, Double hook, Crook. | 178. (?) |
| 163. Leg, Foot (rarely), Caterpillar, Notch. | 179. Caterpillar, Double hook, Double crook, Angle, Bent leg, Duck. |
| 164. Leg (variation), Necklace, Beads, Dentialia, Grasshopper (rarely) (arranged spirally and horizontally). | 180. Root digger, Cross, Head. |
| 165. Leg (variation), Necklace (rarely), Dentialia, Grasshopper. | 181. Root digger, Cross, Head (possibly from whites), Fishhook(?). |
| 166-168. (?) | 182. Leg, Foot. |
| 169. Hook, Hooked end, Fishhook, Foot, Grasshopper. | 183. Hooked end, Leaning, Hook, Fishhook (rarely), Foot, Bent leg, Grasshopper, Leg leaning. |
| 170. Leg, Foot, Grasshopper. | 184. Bent back, Broken back, Broken rib, Bent leg, Grasshopper. |
| 171. Grasshopper. | 185. Fishhook. |
| 172. Leg, Foot. | 186. Fish spear, Bird's foot. |
| 173, 174. Leg, Foot, Grasshopper. | |

THE MEANDER

- | | |
|---|--|
| 187, 188. Snake, Snake track (rarely), Mouth. | 204. Necklace, Cloud, Mountain, Zigzag half circles Stepped half circles, Embroidery. |
| 189-191. Mouth. | 205. Cloud, Zigzag, Embroidery, Half design. |
| 192. Variant of grave box, Mouth. | 206. Star, Star notched or stepped all around, Gnawed all around. |
| 193. Mouths, Notches facing each other. | 207. Star, Stepped star, Variation of ladder or necklace(?), Notched or gnawed edges all around, Woven bag design. |
| 194-196. Notch, Mouth, Caterpillar, Skesknits(?). | 208. Star, Notched star, Star stepped all around, Star surrounded by a cloud, Cloud with star shining through it. |
| 197. Snail, Caterpillar, Head, Duck's head. | |
| 198. Snail, Caterpillar, Head. | |
| 199. Necklace. | |
| 200. Necklace, Mountain, Zigzag steps. | |
| 201, 202. Necklace, Cloud and mountain, Zigzag half circles, Stepped half circles, Embroidery, Clouds, Steps. | |
| 203. Necklace, Cloud and mountain, Zigzag half circle, Stepped half circle, Embroidery, Clouds. | |

PLATE 83

THE MEANDER

- | | |
|---|---|
| 209. Cloud, Necklace, Embroidery, Cloud and mountain. | 210. Cloud, Embroidery, Half of a design. |
|---|---|

CROSSED LINES

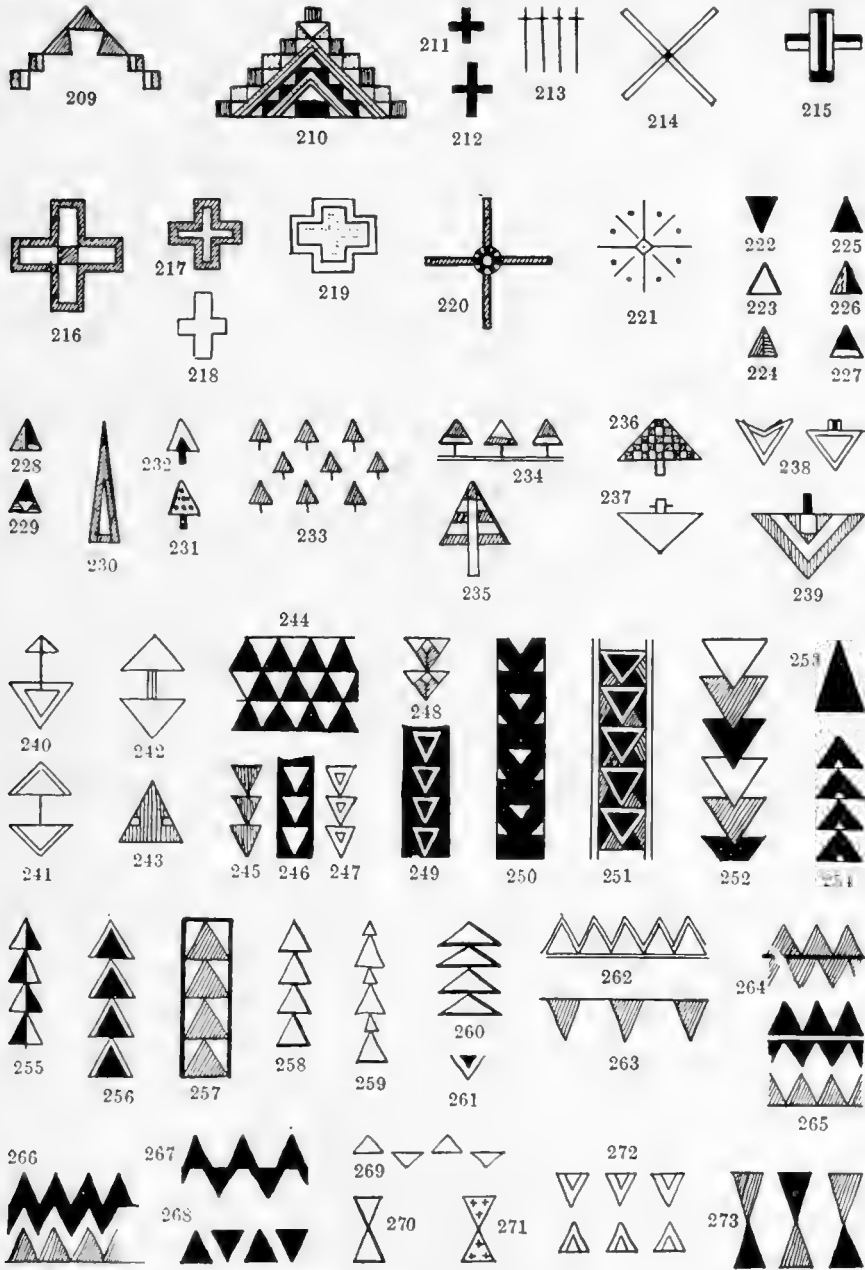
- | | |
|--|---|
| 211, 212. Star, Small star, Fly (rarely), Flying birds or insects. | 216. Star, Big Star (?), Morning star, Cross. |
| 213. Star. | 217. Star, Morning star. |
| 214. Star, Fishline reel. | 218. Star. |
| 215. Star, Big star. | 219. Star (notched), Leaf (Spuzzum). |
| | 220, 221. Sun (painted on circular lids), Star, Flower. |

TRIANGLES

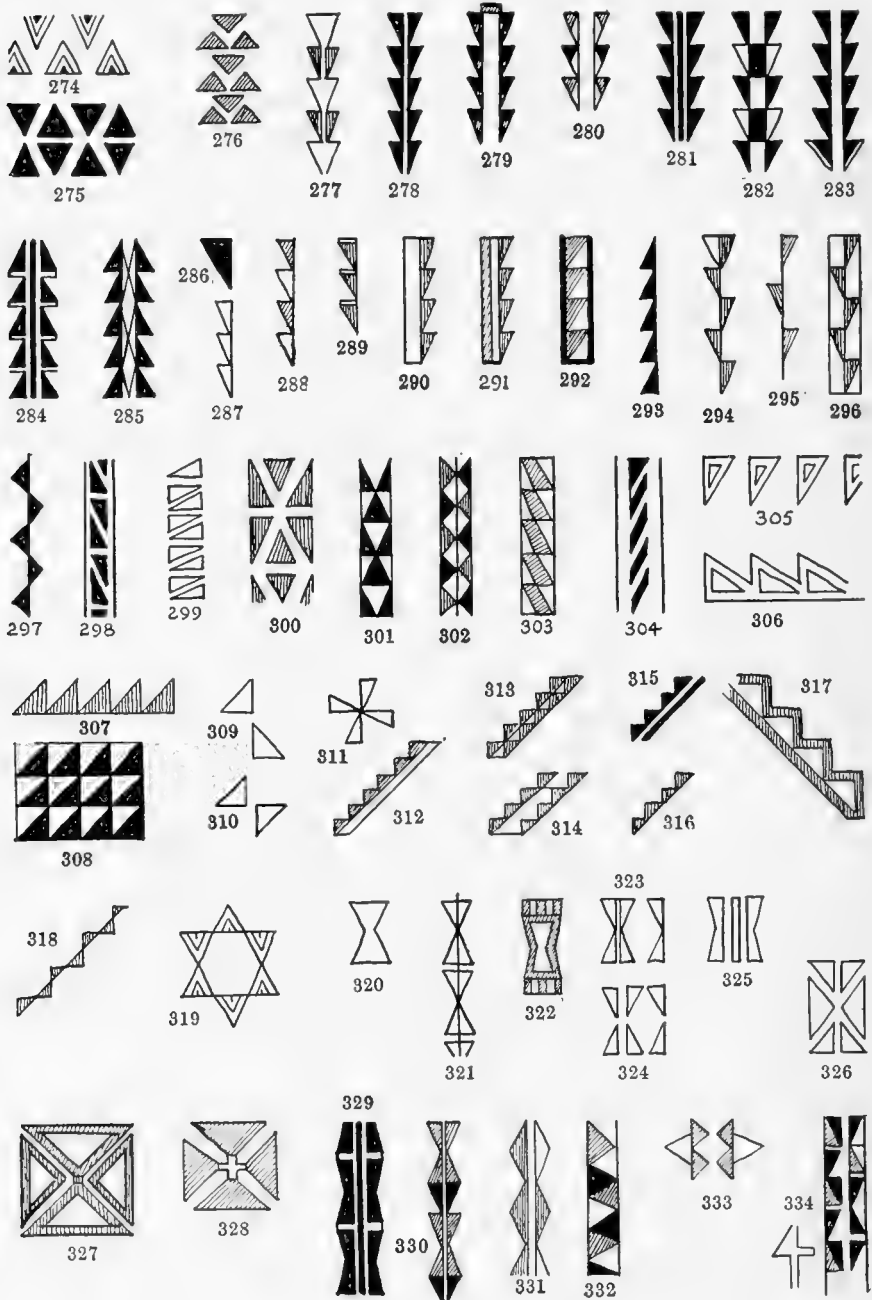
- | | |
|---|--|
| 222-229. Arrowhead. | 248. Butterfly. |
| 230. Snake(?), Bullsake(?), Snake's head, Wood-worm(?). | 249-251. Arrowhead. |
| 231-233. Arrowhead. | 252. Arrowheads entering one another. |
| 234, 235. Bush, Mushroom, Tree. | 253. (?). |
| 236. Bush, Mushroom, Tree, Bead. | 254. Arrowheads touching bases. |
| 237. Butterfly(?). | 255, 256. (?). |
| 238. Arrowhead. ^{1 2} | 257. Arrowhead, Ladder. |
| 239. Butterfly, Wing of butterfly. | 258-260. Parflèche(?). |
| 240, 241. Arrow, Arrowhead. | 261. Butterfly. |
| 242. Arrowhead. ¹ | 262. Leaf (double). |
| 243. Arrowhead, Leaf. | 263. Tooth, Grizzly-bear tooth, Butterfly (rarely). |
| 244. Arrowhead (joined all over), Cloud (rarely), Fern. | 264-267. Arrowhead (rarely), Tooth, Leaf, Fern leaf. |
| 245. Arrowheads touching bases. | 268, 269. Arrowhead, Tooth. |
| 246. Arrowhead. | 270. Parflèche. |
| 247. Arrowhead, Butterfly, Butterfly wing. | 271. Butterfly, Arrowhead star, Wing. |
| | 272. Arrowhead, Butterfly, Butterfly wing. |
| | 273. Tooth (rarely), Arrowhead (rarely), Wing. |

¹ Occasionally used. Formerly beadwork pattern.

² Drawn from Indian description.



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 84

TRIANGLES

- | | |
|---|---|
| 274, 275. Arrowhead, Butterfly, Butterfly wing. | 304. Half arrowhead, Xanaxa'in, Hair ribbon, Dentalia, Connected. |
| 276. Arrowhead. | 305. Butterfly, Butterfly wing. |
| 277. Arrowhead, Half arrowhead, Ladder (var.). | 306. Single leaf. |
| 278. Ladder, Arrowhead. | 307. Half arrowhead horizontal, Ladder horizontal. |
| 279. (?) | 308. Half arrowheads joined all over. |
| 280. Ladder, Arrowhead. | 309, 310. Swallow, Wing. |
| 281. Ladder, Arrowhead. | 311. Star, Arrowhead (occasionally). |
| 282, 283. (?) | 312. Ladder. |
| 284. Arrowheads touching bases, Ladder. | 313, 314. Ladder, Caterpillar. |
| 285. Arrowheads, Ladder. | 315, 316. Ladder, Arrowhead. |
| 286. Arrowheads, Half arrowheads. | 317. Ladder, Caterpillar. |
| 287. Ladder, Notched bark. | 318. Tree ladder, Arrowhead, Mountain, Caterpillar. |
| 288. Ladder, Half arrowhead. | 319. Star, Arrowhead (occasionally). |
| 289. Ladder, Tooth, Cloud (rarely), Half arrowhead. | 320. Parflèche. |
| 290, 291. Ladder. | 321. Ladder (var.), Contracted middle, Butterfly (rarely). |
| 292. Ladder, Arrowhead. | 322. Comb, Double comb, Parflèche(?). |
| 293. Ladder, Half arrowhead. | 323-325. Arrowhead, Parflèche. |
| 294. Tree Ladder, Arrowhead. | 326. Arrowhead, Star, Cross. |
| 295. ¹ Arrowhead, Ladder for climbing trees. | 327. Arrowhead, Arrowhead star, White man's design(?). |
| 296. Arrowhead, Ladder. | 328. Star, Arrowhead star, Arrowhead cross. |
| 297. Bead, Beaded edge, Caterpillar. | 329, 330. Arrowheads touching bases, Ladder(?). |
| 298. Half arrowhead, Dentalia, Connected, Hair ribbon, Xanaxa'in. | 331. Arrowhead, Variation of notched ladder, Bead. |
| 299. Swallow, Wing. | 332. Arrowhead. |
| 300, 301. Arrowhead. | 333. Star, Arrowhead star (occasionally). |
| 302. Arrowhead, Snake, Snake skin. | 334. Arrowhead. |
| 303. Half arrowhead, Xanaxa'in, Ladder, Embroidery (cf. 571). | |

¹ On a new basket.

PLATE 85

TRIANGLES

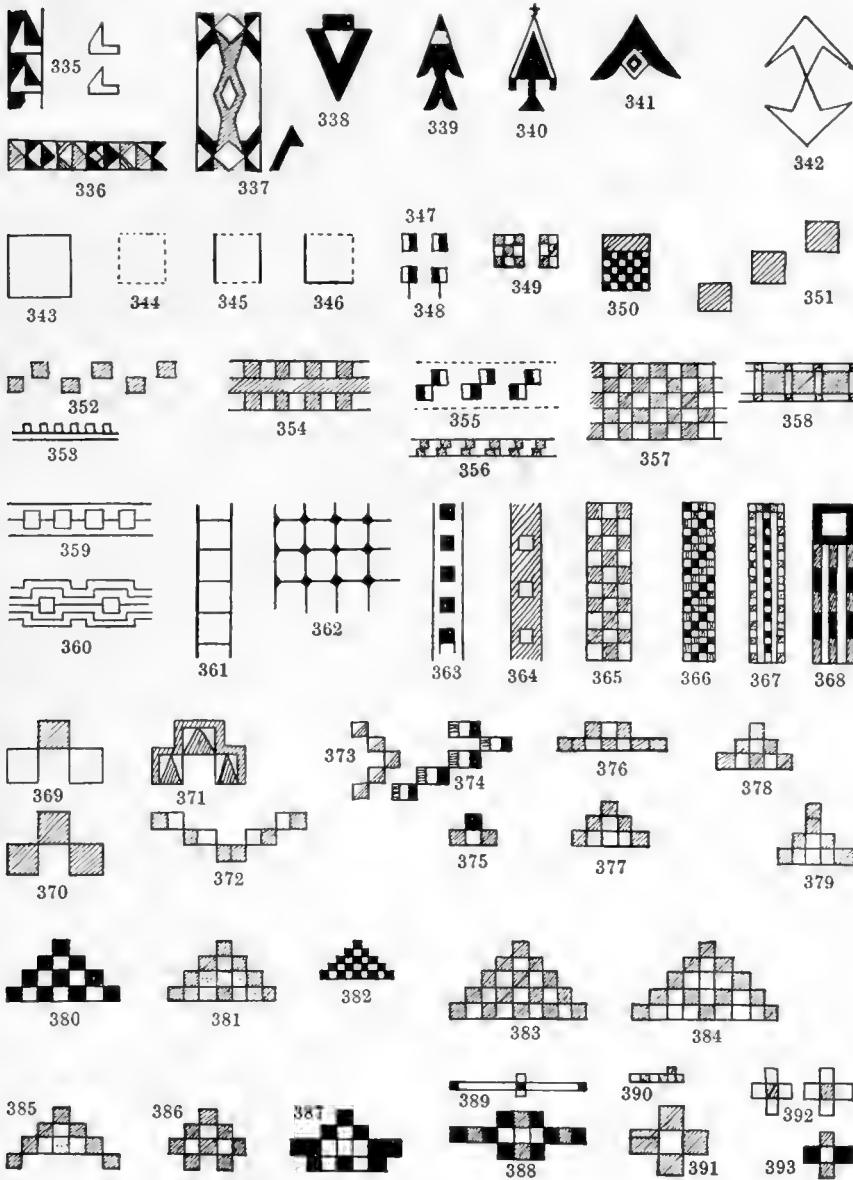
- 335, 336. Arrowhead, Half arrowhead.
337. (?).
338. Arrowhead.

339. Arrowhead, Bird, Swallow, Dream design, Fern.
340. Arrowhead, Bird, Swallow.
341, 342. Arrowhead.

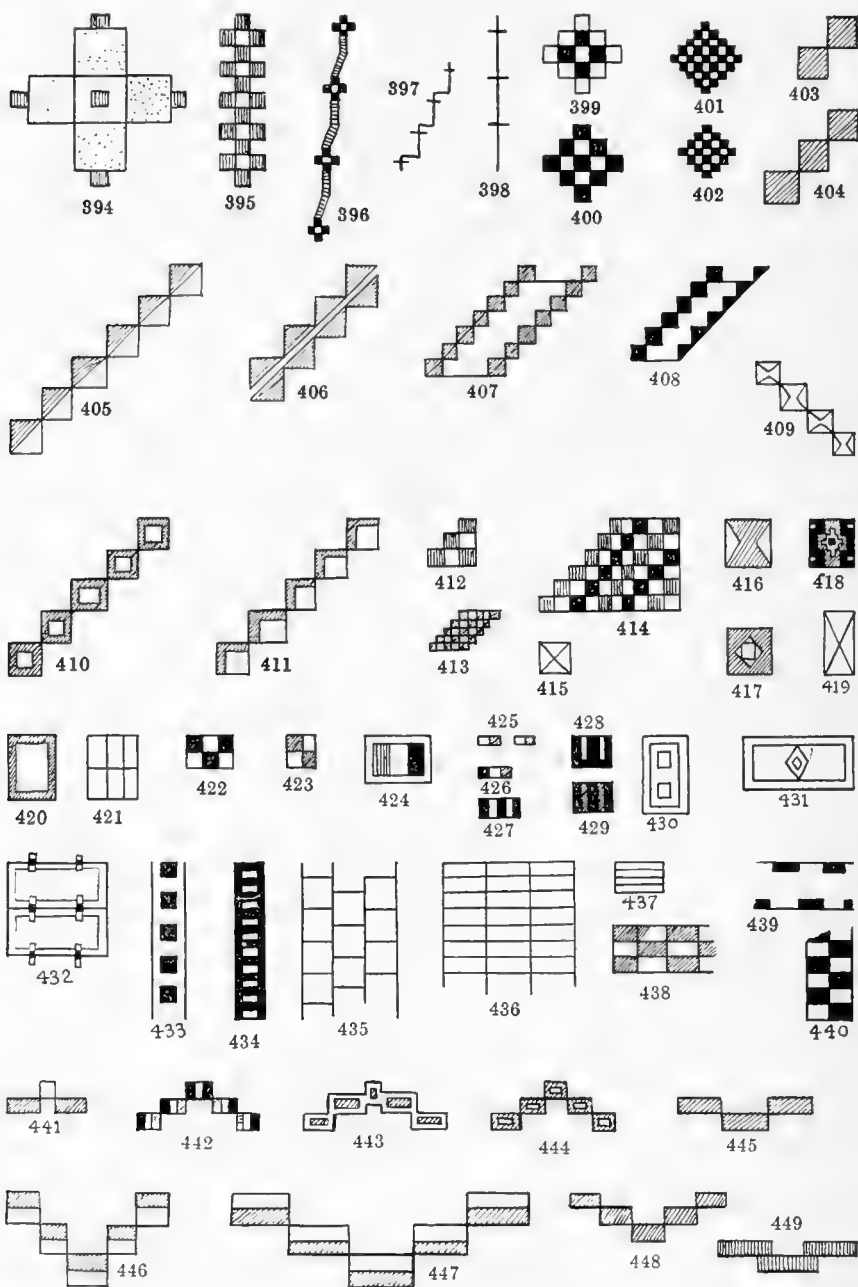
SQUARES

- 343-346. (?).
347. Bead, Fly, Star.
348. Bead, Woodworm.
349. Bead, Star, Hairy caterpillar.
350. Tsené'ka, Embroidery, Comb.
351, 352. Big bead.
353. Tooth.
354. Necklace, Headband, Beads, Embroidery, Bullsnake, Rattlesnake.
355. Twisted, Bead, Caterpillar (rare).
356. Twisted, Bead, Hair ribbon, Necklace, String of beads.
357. Twisted, Bead, Hair ribbon, Necklace, Bullsnake, Snake skin.
358. Embroidery, Bead, Fly, Necklace, Rattlesnake, Snake.
359. Bead, Necklace, Spot, Joined squares.
360. Grave box, Mouth (rarely).
361. Xanaxa'in, Ladder.
362. Fish net, Deer net.
363. Snake, Woodworm, Hair ribbon.
364. Spot, Bead, Hair ribbon, Woodworm.
365. Snake, Bullsnake, Necklace, Bead embroidery, Fly.
366. Snake, Snake skin, Caterpillar, Bead, Step, Embroidery.
367. Rain (rarely), Necklace of beads, Tsené'ka, Embroidery.
368. Comb, Embroidery, Tsené'ka (hair ornament).
369. Big bead, Notch, Cloud.

370. Big bead, Cloud.
371. Big bead, Notch, Embroidery, Cloud, Circles.
372. Big bead, Big spot, Embroidery, Cloud, Neck-lace, Butterfly, Insect, Bird.
373. Big bead, Flying insect or bird (Utā'mqt), Caterpillar.
374. Big bead, Caterpillar, Dentalia.
375. Star, Fly, Flying bird, Insect.
376. Big bead, Hat.
377, 378. Cloud, Cluster of flies (Ut.), Heaped up, Bead, Embroidery, Part of mula, Spot (heaped up), Part of spotted star (Nicola), Mountain (rare), Caterpillar.
379. Cloud, Bead, Step, Ladder, Half of a design, Embroidery.
380-387. Cloud, Cluster of flies (Utā'mqt), Heaped up, Bead, Embroidery, Part of mula (root of wild rice, lily root), Spot (heaped up), Half or part of spotted star (Nicola), Mountain (rare), Caterpillar.
388. Star (Nicola), Fly (Utā'mqt), Dragon fly.
389. Fly, Dragon fly, Flying bird.
390. Cloud, Pipe, Bead.
391. Big star, Small fly (Utā'mqt), Buttercup (Nicola), Owl's face (Lytton).
392. Big star, Flower, Buttercup, Owl's face.
393. Big star (Nicola), Fly (Utā'mqt).



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 86

SQUARES

- | | |
|---|--|
| 394. Ornamented star variation. | 410. Rattlesnake, Big bead. |
| 395. Leaf (Spuzzum), Star, Bead. | 411. Ladder of underground house. |
| 396-398. Star, Shooting star (Nicola). | 412. Cloud, Embroidery, Fly, Big bead, Gnawed edges all around. |
| 399, 400. Mula, Star (Lower Nicla), Cluster of stars (Nicla), Cluster of flies (Utä'mqt). | 413. Fly, Big bead, Steps, Snake or snake skin, Hairy caterpillar, Embroidery. |
| 401. Mula, Cluster of flies (Utä'mqt). | 414. Embroidery, Step, Big bead, Caterpillar, Snake, Snake skin. |
| 402. Mula, Cluster of flies (Utä'mqt), Cluster of stars (Nicola). | 415. Star, Arrowhead star (occasionally), Big bead. |
| 403, 404. Big bead, Caterpillar. | 416. Contracted middle, Arrowhead, Cloud, Parfleche. |
| 405. Big bead. | 417. Arrowhead star. |
| 406. Ladder, Arrowhead. | 418. Star, Notched star, Stepped star. |
| 407. Ladder, Big bead, Caterpillar. | |
| 408. Ladder, Caterpillar. | |
| 409. Ladder, Big bead. | |

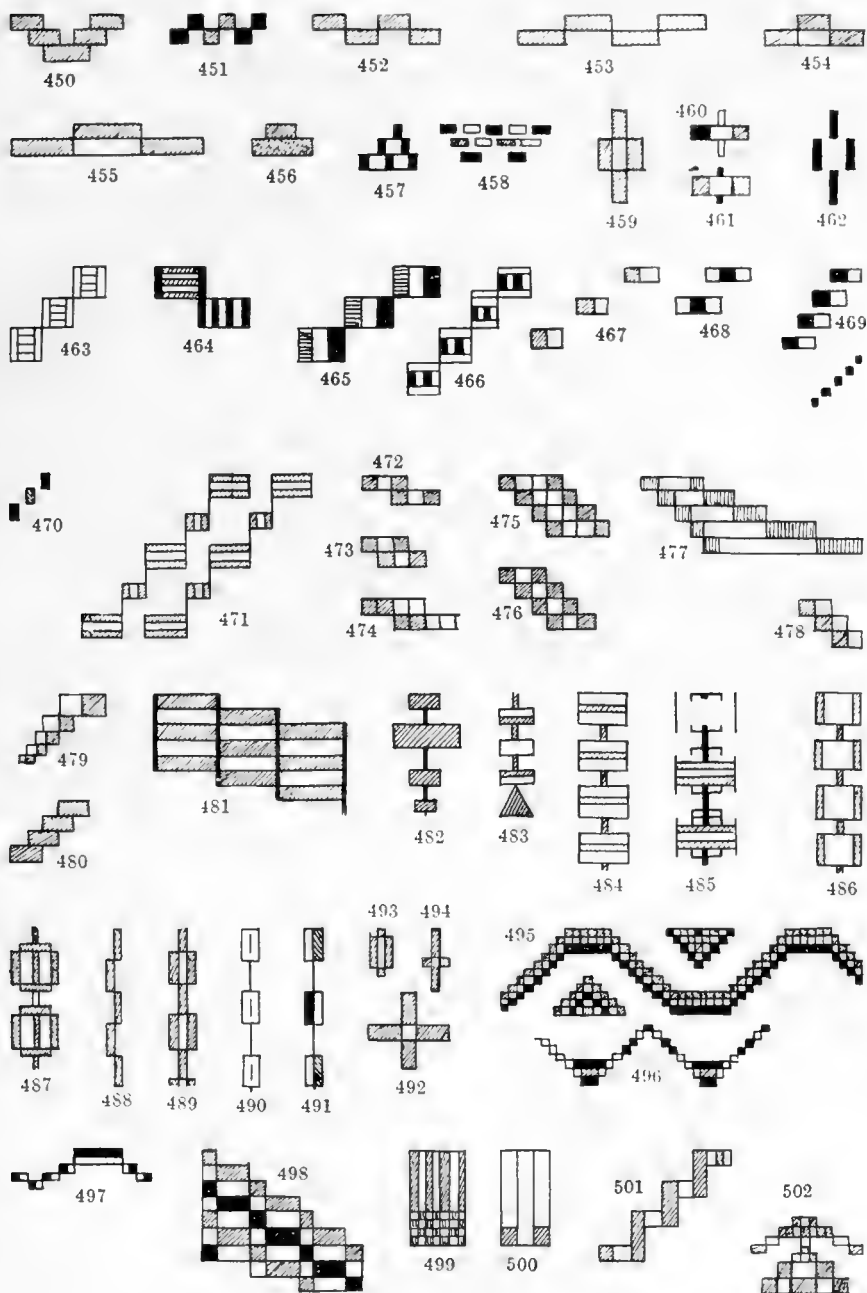
RECTANGLES

- | | |
|---|--|
| 419. Star, Arrowhead star (occasionally), Big bead. | 435. Patch (real patch design), Net (rarely). |
| 420. Moss cake, Tsené'ka (hair flap). | 436. Patch (Spuzzum). |
| 421. Window. | 437. Bead, Striped bead, Dentalium. |
| 422. (?) | 438. Snake, Bullsake, Big bead, Fly, Dentalia. |
| 423. Beads, Part of step design, Big bead, Caterpillar. | 439. Necklace, Snake. |
| 424. Star, Bead. | 440. Snake, Snake skin, Bullsake, Fly. |
| 425. Star (Nicola), Bead, Fly. | 441. Big bead, Notch, Cloud, Flying bird. |
| 426. Big bead, Fly. | 442. Big bead, Necklace, Steps, Cloud, Embroidery. |
| 427. Big bead, Dentalium, Caterpillar. | 443. Big bead, Necklace, Steps, Cloud, Embroidery, Ladder (variation). |
| 428. Dentalium, Caterpillar. | 444. Big bead, Necklace, Steps, Cloud, Embroidery. |
| 429. Dentalium, Caterpillar. | 445-447. Big bead, Big spot, Butterfly, Cloud, Embroidery, Flying insect or bird (Utä'mqt). |
| 430. Door. | 448. Necklace (in addition to preceding). |
| 431. Eye. | 449. Big bead, Big spot, Butterfly (Spuzzum), Cloud, Notch, Flying insect or bird (Spuzzum), Flying goose. |
| 432. Tsené'ka. | |
| 433. Ladder, Dentalia, Xanaxa'in. | |
| 434. Shell embroidery, Ladder (Coldwater), Dentalia, Xanaxa'in. | |

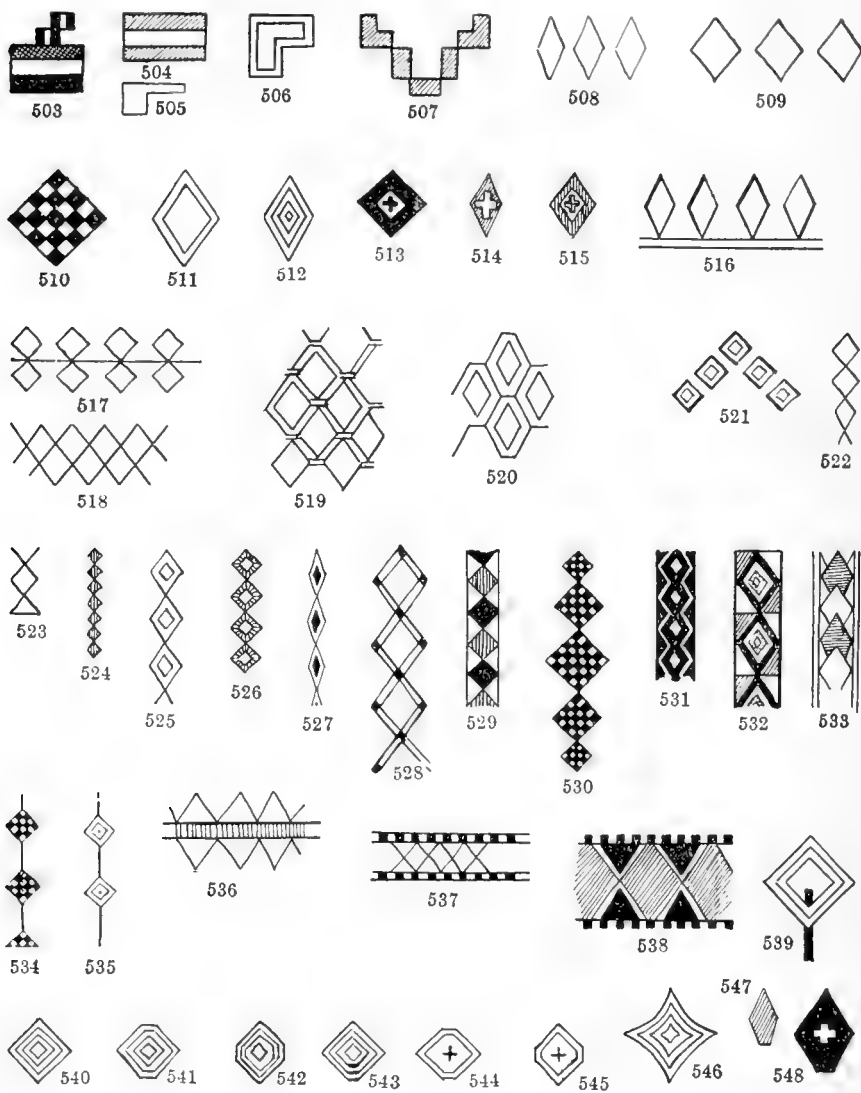
PLATE 87

RECTANGLES

450. Big bead, Big spot, Butterfly (Spuzzum), Cloud, Notch, Flying insect or bird (Spuzzum), Flying goose, Necklace.
451. Beads, Necklace, Notch, Notch extended, Circling, Caterpillar, Clouds extended.
- 452, 453. Cloud extended, Notch, Caterpillar, Flying goose.
454. Cloud, Mountain, Cluster of flies (Utā'mqt), Bead, Embroidery, Hat, Spot (heaped up), Part of spotted star (Nicola), Hairy caterpillar, Mula, Part of mula.
455. Big bead, Hat, Dentalia, Hair ribbon.
456. Big bead, Hat.
457. Caterpillar, Woodworm.
458. Spot, Big bead.
459. Wide-pointed star.
460. Star, Fly, Flying bird, Insect.
461. Star (Nicola), Fly (Utā'mqt), Flying bird, Insect.
462. Star (Nicola), Fly (Utā'mqt).
463. Dentalia, Ladder.
464. Dentalia, Ladder, Big beads.
465. Dentalia, Ladder, Big beads, Steps, Caterpillar.
466. Dentalia, Ladder, Big beads.
467. Ladder.
468. Big beads, Fly, Flying bird, Insect.
- 469, 470. Spot, Big beads.
471. Ladder, Bead, Necklace, Dentalia.
472. (?)
- 473, 474. Hairy caterpillar.
- 475, 476. Cloud, Fly, Bead, Embroidery, Caterpillar.
477. Fly, Bead, Hairy caterpillar.
478. Steps, Bead, Hairy caterpillar, Ladder.
479. Big bead, Hairy caterpillar.
480. Steps, Big bead, Hairy caterpillar, Ladder.
481. Necklace, Beads, Dentalia.
482. Big bead, Necklace.
483. Big bead, Earring.
484. Bead, Spot, Necklace, Joined squares.
485. Dentalia, Necklace.
486. Necklace, Joined squares, Spot.
487. Necklace.
488. Bead, Beaded edge, Caterpillar.
489. Necklace.
- 490, 491. Big bead, Feathers.
492. Star, Cross, Morning star, Big star.
493. Bead, Star.
494. Star.
495. Cloud, Mountain, Necklace, Beads, Zigzag, Half circle.
- 496, 497. Necklace, Beads, Dentalia.
498. Big bead, Step, Embroidery, Caterpillar, Dentalia, Snake, Snake skin.
499. Standing points (Spuzzum), Fly (checked part), TSENÉ'ka, Embroidery, Dentalia, Necklace, Part of a design.
500. TSENÉ'ka.
501. Caterpillar, Woodworm.
502. Mountains and clouds, Beads, Clusters of flies (Utā'mqt).



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 88

RECTANGLES

- | | |
|--|--|
| <p>503. Legging fringe, Clouds, Dentalia, Beads, Big spot (rarely), Caterpillar.</p> <p>504. Dentalia, Caterpillar.</p> <p>505. Hand pointing.</p> | <p>506. Head, Duck's head, Caterpillar.</p> <p>507. Necklace, Design on dresses, Flying bird, Beads.</p> |
|--|--|

DIAMONDS

- | | |
|---|---|
| <p>508. Spearhead(?), Snares, Lakes, Leaves, Meshes, Part of a design (Utā'mqt).</p> <p>509. Wasp's nest.</p> <p>510. Mula (root of wild rice), Cluster of flies, Heart, Big bead.</p> <p>511. Star, Eye, Snare, Mesh.</p> <p>512. Star, Eye, Flower.</p> <p>513-515. Star.</p> <p>516. Leaf.</p> <p>517. Leaf double.</p> <p>518. Net, Fence, Pack strap.</p> <p>519, 520. Fish net, Deer net, Variation of grave box.</p> <p>521. Contracting, Eye, Arrowhead, Snake, Snare, Net, Part of net.</p> <p>522. Contracting, Eye, Big bead.</p> <p>523. Tied ends, Earring.</p> <p>524. Bead, Beaded edge, Woodworm, Caterpillar.</p> <p>525. Contracting, Eye, Arrowhead, Snare, Net, Part of net, Big bead, Snake.</p> <p>526. Rattlesnake, Big bead.</p> <p>527. Eye, Contracting, Big bead.</p> <p>528. Connected crosses, Big bead, Snake, Part of net design, Contracting, Eye, Snare.</p> | <p>529. Arrowhead, Snake, Snake skin.</p> <p>530. Snake.</p> <p>531. Rattlesnake, Big bead.</p> <p>532. Arrowhead.</p> <p>533. Arrowhead heaped up (cf. 252).</p> <p>534. Necklace, Big bead, Mula, Clusters of flies (Utā'mqt), Heart (Utā'mqt).</p> <p>535. Necklace, Big bead, Heart.</p> <p>536. Necklace, Bear's foot(?), Tracks(?).</p> <p>537. Necklace, Embroidery, Snake, Net.</p> <p>538. Bear's foot.</p> <p>539. Flower.</p> <p>540. Flower, Star, Leaf.</p> <p>541, 542. Flower, Star, Leaf (rarely).</p> <p>543. Star, Arrowhead(?), Thunderbolt, Flower, Leaf.</p> <p>544, 545. Star.</p> <p>546. Star, Flower, Leaf.</p> <p>547. Arrowhead, Leaf.</p> <p>548. Arrowhead with cross or star, Thunder arrowhead, Thunderbolt, Leaf.</p> |
|---|---|

PLATE 89

DIAMONDS

- | | |
|---|---|
| 549. Beaver's tail. | 560. Star, Pack strap. |
| 550. Arrowhead. | 561. Net design in fragments. |
| 551. (?) | 562. Necklace (rarely). |
| 552. Big bead, Heart, Mula, Clusters of flies
(Utā'mqt). | 563. Tsupenāist (rarely), Net (rarely), Necklace,
Double zigzag. |
| 553-555. Arrowhead. | 564. Butterfly(?), Part of tsupenāist, Wing. |
| 556. Parflèche. | 565. Butterfly, Part of tsupenāist, Wing. |
| 557. Star, Part of tsupenāist. | 566. Zigzag, Deer fence and snares. |
| 558. Necklace with pendants, Double zigzag. | 567. Entwining, Zigzag. |
| 559. Arrowhead, Eye(?), Star, Beaver (rarely),
Variation of necklace, Deer fence and snares. | |

RHOMBOIDS

- | | |
|--|---|
| 568, 569. Spot, Big bead, Dentalia, Caterpillar. | 570, 571. Arrowhead, Necklace, Beaded embroidery,
Dentalia, Xanaxa'in. |
|--|---|

TRAPEZOIDS

- | | |
|---|---|
| 572. Tooth, Grizzly-bear tooth, Butterfly (rarely). | 579. Cloud, Mountain, Dentalia, Embroidery. |
| 573-575. Tsena'ka. | 580. Bead, Beaded edge, Caterpillar. |
| 576. Dentalia, Ladder. | 581. Snake, Bullsake, Rattlesnake. |
| 577, 578. Cloud (Nicola). | |

THE HEXAGON

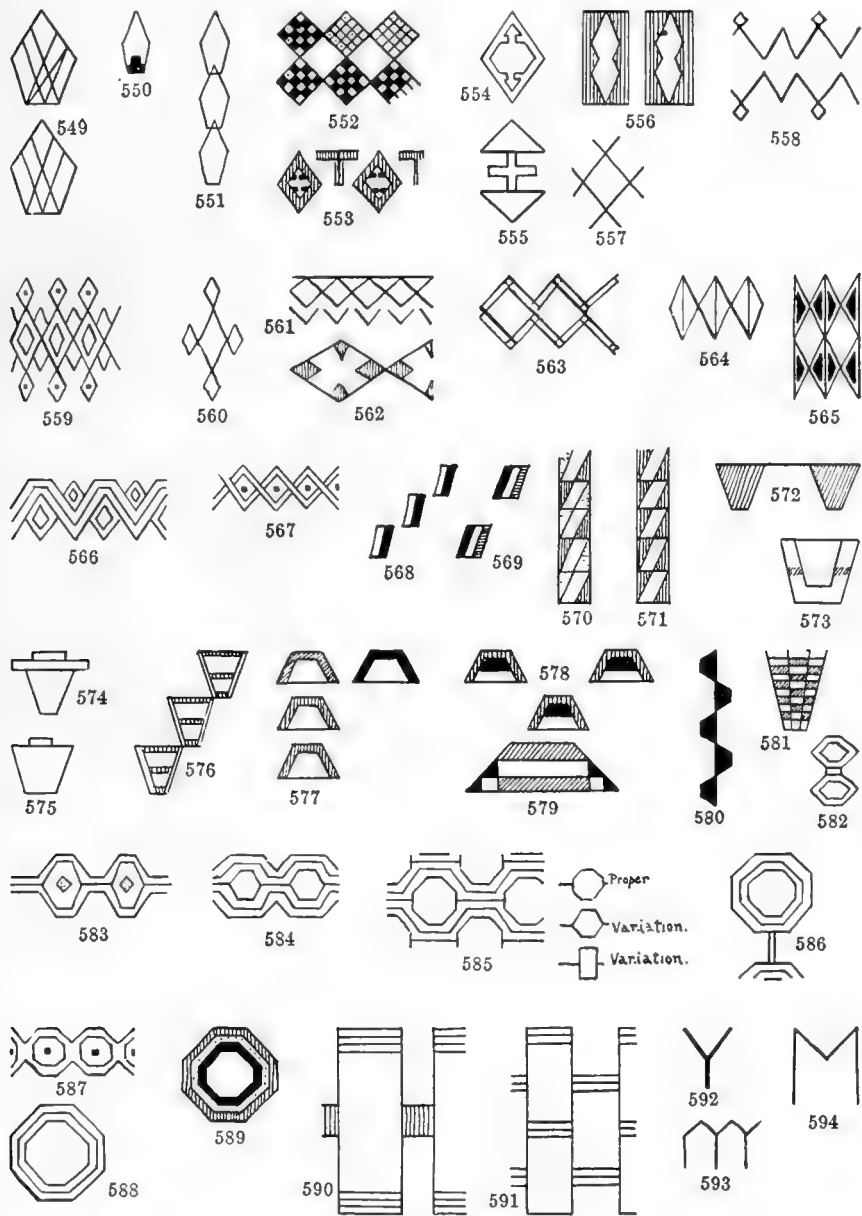
- | | |
|--|-----------------|
| 582. Snare, Circle, Half or part of grave box. | 583. Grave box. |
|--|-----------------|

THE OCTAGON

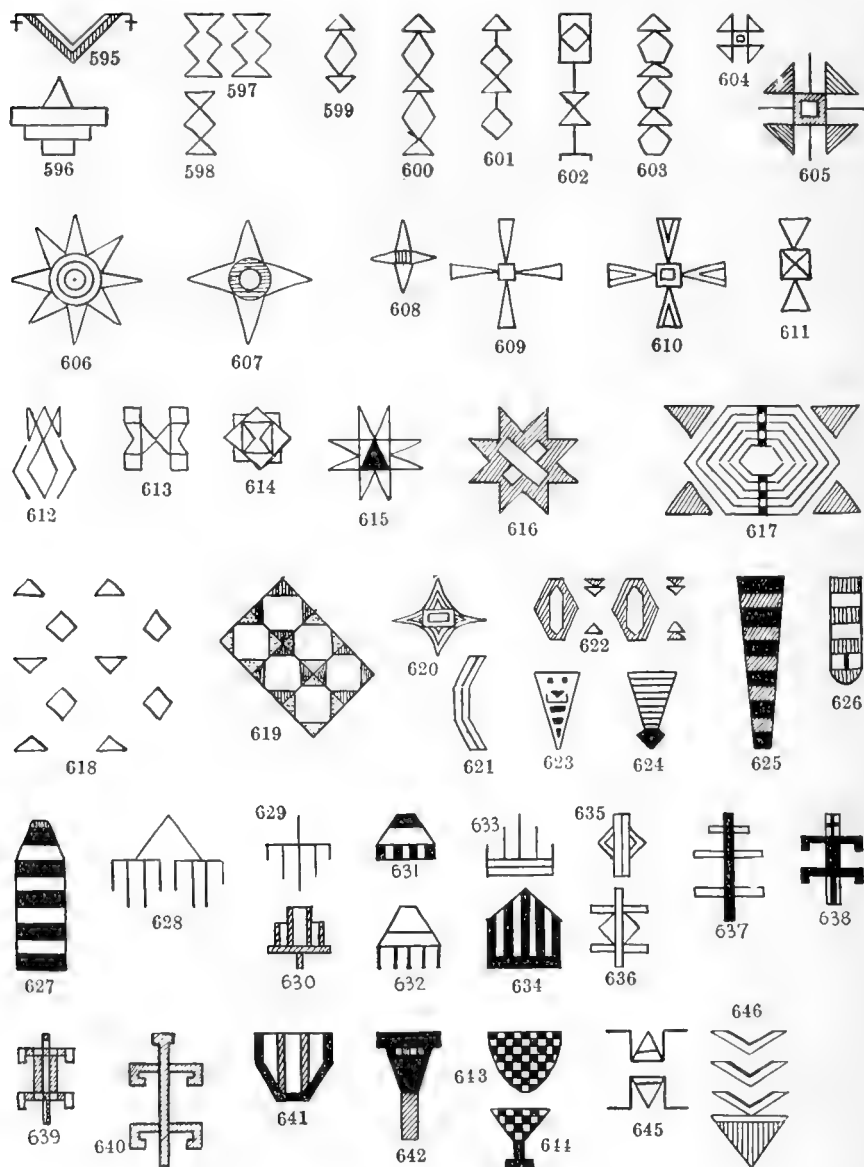
- | | |
|---|---|
| 584. Grave box. | 588. Full moon, Half horizontal zigzag or meander
(Spuzzum), Circle, Snare, Part of grave box,
Grasshopper. |
| 585. Real grave box (Spuzzum, cf. 520), Lodge
(Lytton design). | 589. Moon. |
| 586. Big bead, Part of grave box, Necklace. | |
| 587. Variation of grave box, Eye (rarely). | |

THE COMBINATION OF SIMPLE GEOMETRIC FIGURES

- | | |
|---|----------------------------------|
| 590. Necklace, Beads, Dentalia, Embroidery of
shell, beads, or quills. | 592. Part of grave box. |
| 591. Necklace, Beads, Dentalia. | 593. Arrow notch, Mountain tops. |
| | 594. (?) |



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 90

THE COMBINATION OF SIMPLE GEOMETRIC FIGURES

595. Necklace.	609, 610. Star, Arrowhead star.
596. Tsené'ka.	611-613. Star, Arrowhead (occasionally).
597, 598. Parflèche, Arrowhead.	614. Star, Arrowhead (occasionally), Flower.
599-601. Parflèche(?).	615. ² Star, Arrowhead (occasionally).
602. Arrow.	616. Star, Arrow-point star, Star notched all around.
603. Parflèche(?).	617. (?).
604, 605. Star, Arrowhead star.	618. Leaf, Arrowhead.
606. ¹ Sun, Star, Flower.	619. (?).
607. ¹ Arrowhead star, Flower.	620. ³ Star, White man's star (Spuzzum).
608. Star, Arrowhead star, Flower.	

DESIGNS EITHER GEOMETRIC OR REALISTIC

621. Half moon.	633, 634. Hand, Fingers.
622. Moon and arrowhead, Full moon, Arrowhead and shield(?).	635-640. Lizard.
623, 624. Rattles, Rattlesnake's tail.	641. Moccasin, Inverted sweat house or lodge.
625. Snake, Bullsnake, Woodworm, Snake's head.	642. Eagle's nest, Bird's nest.
626, 627. Snake, Snake's head, Bullsnake, Woodworm.	643. Panther, Robin's nest, Bird's nest.
628-630. Crow's foot, Bird's foot.	644. Bird's nest.
631, 632. Bear's foot, Comb.	645. Sheep horns.
	646. Butterfly.

¹ Painted on circular lids.

² Has different kinds of centers.

³ Copied from oilcloth. The general shape is always the same, but there are many varieties of centers.

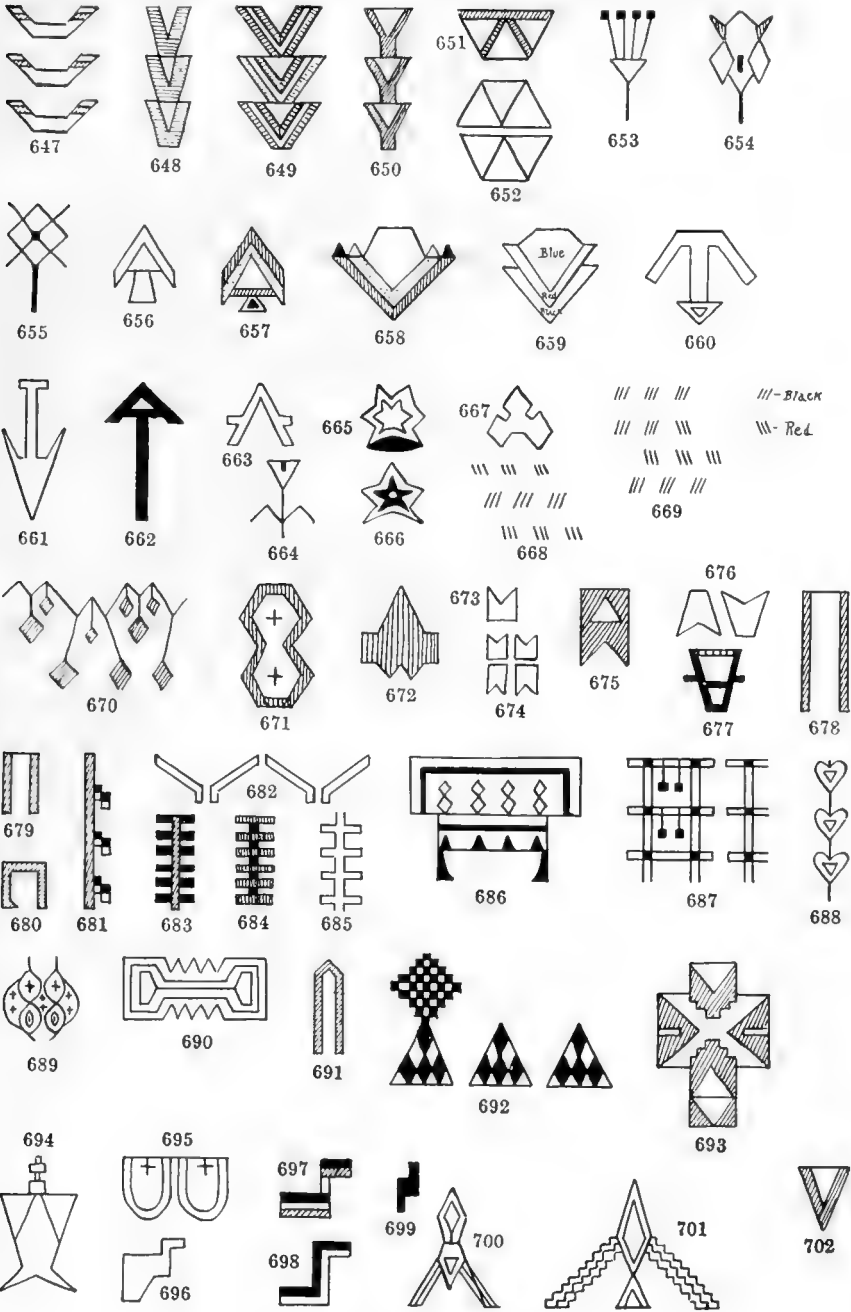
PLATE 91

DESIGNS EITHER GEOMETRIC OR REALISTIC

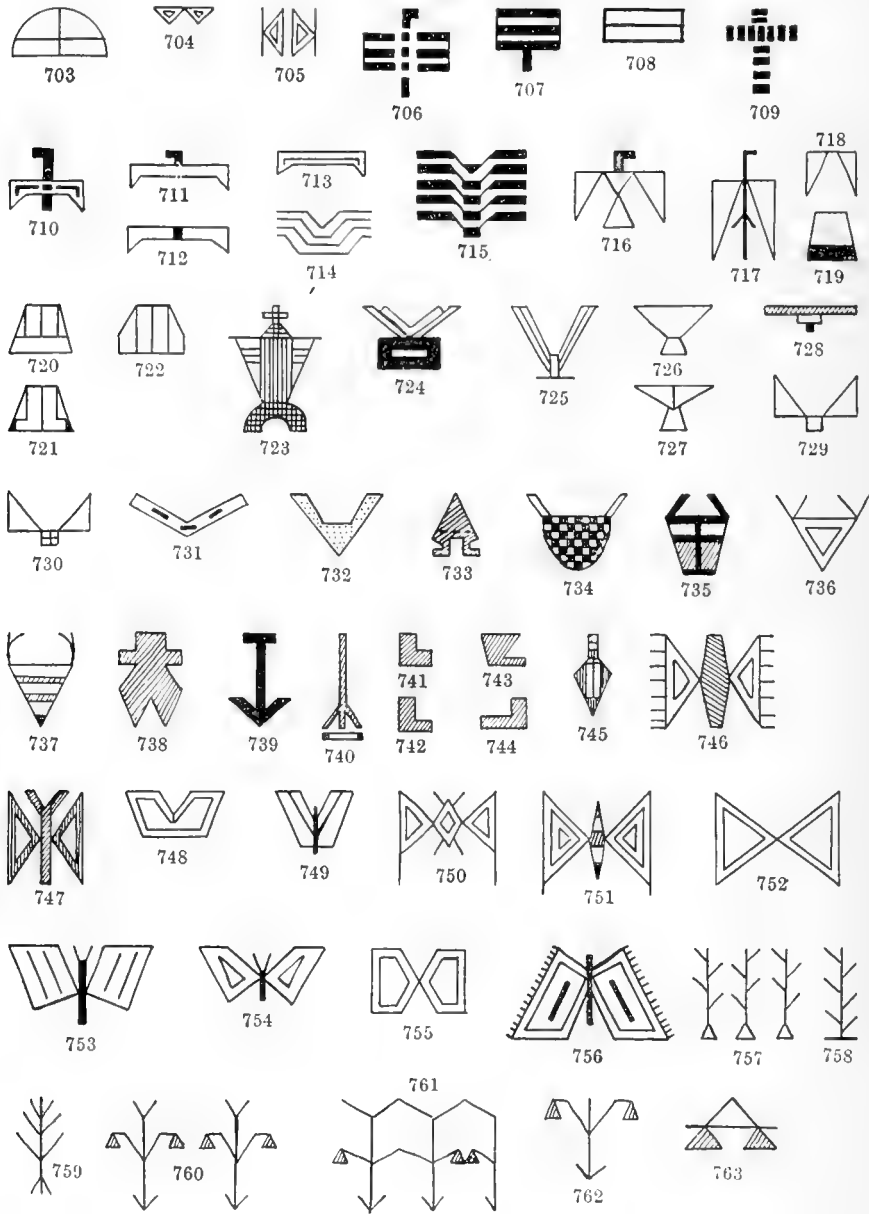
- | | |
|--|--|
| 647. Flying birds, Swallow, Butterfly (rarely). | 674. Moccasin trailer, Deer track, Deer hoof, |
| 648. Butterfly (rarely), Necklace, Notch, Arrow. | Tsené'ka, Notch, Notched end. |
| 649. Butterfly. | 675. Notch, Arrowhead, Part of a design, Tsené'ka, |
| 650. Butterfly (rarely), Necklace, Notch, Arrow. | Basketry. |
| 651. Butterfly. | 676. Swallow tail. |
| 652-655. (?) | 677. Tsené'ka. |
| 656. Spearhead, Flower. | 678, 679. Leg, Legging. |
| 657. Flower. | 680. Hook, Foot (rarely), Leg. |
| 658. Flower, White clematis. | 681. Legging with beaded fringe. |
| 659. Flower, Blue clematis. | 682. House, Lean-to lodge. |
| 660. Leaves, Flower, Spearhead, Thunderbolt | 683-685. Ladder, Tree ladder (Coldwater). |
| (rarely). | 686. Grave box(?), Ornament(?), Tsené'ka, Woven |
| 661. Flower, Arrowhead, Spearhead. | bag patterns. |
| 662. Arrow. | 687. Girl's frame. |
| 663. Arrowhead. | 688. Heart, Tsené'ka. |
| 664. (?) | 689. Pack strap with fillings, Net, Mesh. |
| 665-667. Leaf, Pool, Maple leaf. | 690. Part of grave box, Butterfly, Kind of fern, |
| 668, 669. Berries. | Variation of butterfly, Xane'm. |
| 670. Necklace with tooth pendants, Big beads. | 691. (?) |
| 671. Embroidery, Cactus(?), Dress design. | 692. Mula (Lytton), Dream design(?). |
| 672. Arrowhead. | 693. Butterfly (?), Woven bag pattern, Tsené'ka |
| 673. Moccasin trailer, Deer track, Deer hoof. | (rarely). |

STRONGLY CONVENTIONALIZED

- | | |
|---|---|
| 694. Eagle, Bird, Thunder. | 701. Spearhead, Thunderbolt and lightning (rare), |
| 695. Moccasin, Clouds with stars. | Storm clouds, Cloud, Fanciful single figure. |
| 696-699. Duck, Caterpillar. | 702. Lily root (Mula, Root of wild rice), Snake's |
| 700. Spearhead, Thunderbolt and rainbow (rare), | tail. |
| Storm clouds. | |



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 92

STRONGLY CONVENTIONALIZED

703. Sweat house.	724-730. Flying birds, Swallow.
704, 705. Butterfly, Butterfly wing.	731, 732. Flying birds, Swallow, Swallow wing.
706. Eagle, Bird.	733. Shaman wearing mask.
707. Eagle, Flying bird.	734-736. Panther, Deer's head.
708. Eagle, Flying bird, Dentalia.	737. Deer's head.
709. Eagle, Flying bird.	738. Deer's hoof.
710, 711. Eagle, Bird.	739. Arrowhead.
712, 713. Eagle, Flying bird, Eagle wing.	740. Fish spear and fish.
714, 715. Flying goose, Bird.	741-744. Pipe, Foot.
716, 717. Eagle, Bird.	745. Arrowhead (ornamented).
718. Eagle, Flying bird.	746-756. Butterfly.
719-722. Eagle, Bird, Eagle's or bird's tail.	757-759. Tree.
723. Eagle, Bird.	760-763. Pine cones (yellow).

PLATE 93

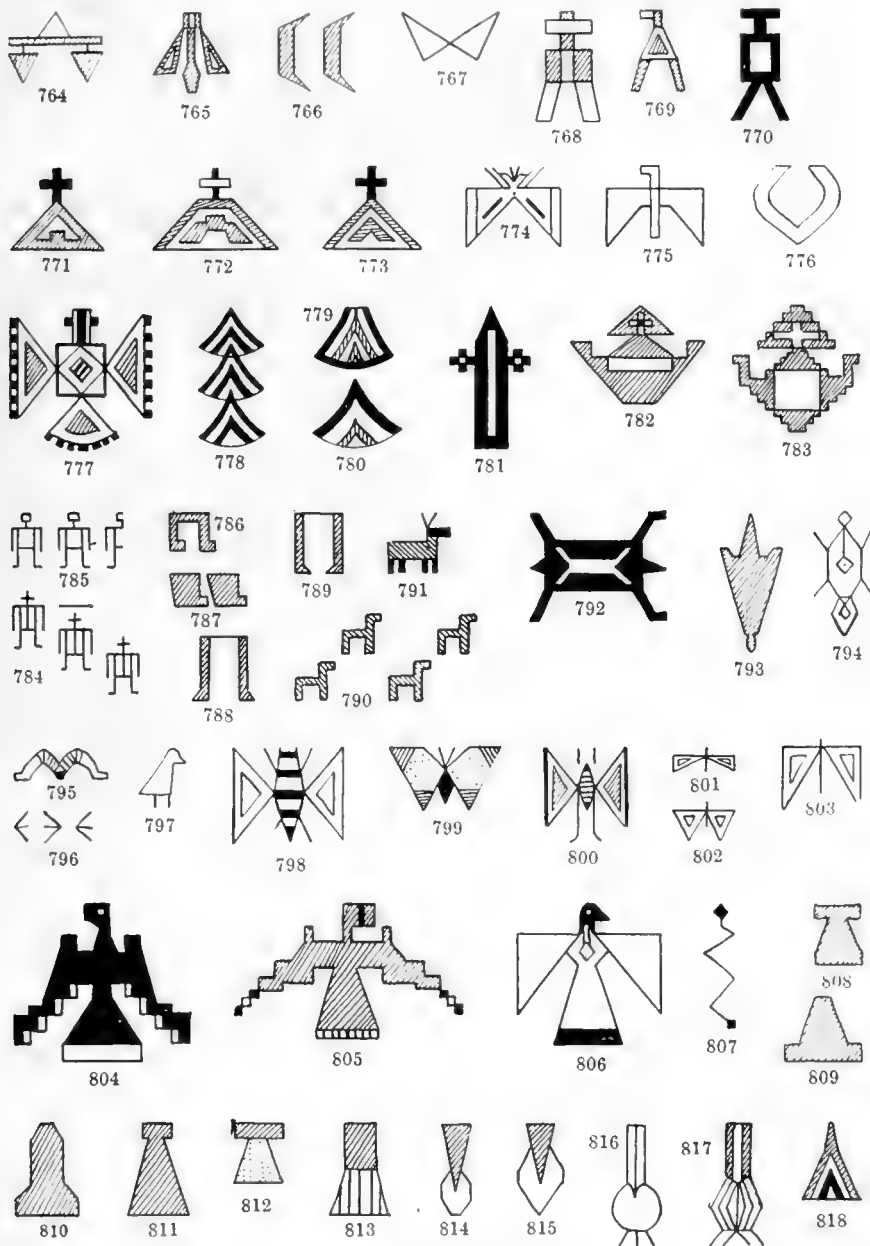
STRONGLY CONVENTIONALIZED

764. Pine cones (yellow).	774. Butterfly.
765. Butterfly or insect.	775. Bird, Eagle, Opalile'tsa.
766. Half moon (?).	776. Rainbow, Circling half circle, Mouth, Notch, Corral, Pack strap, Kakanëtz.
767. Flying bird, Swallow, Wing.	777. ¹ Eagle.
768-770. Man, People.	778-780. Eagle's tail.
771-773. Underground house with cross at the head of the ladder, Tipi, Dream designs, Grave mound with cross.	781. Eagle's head.
	782, 783. Flying bird.

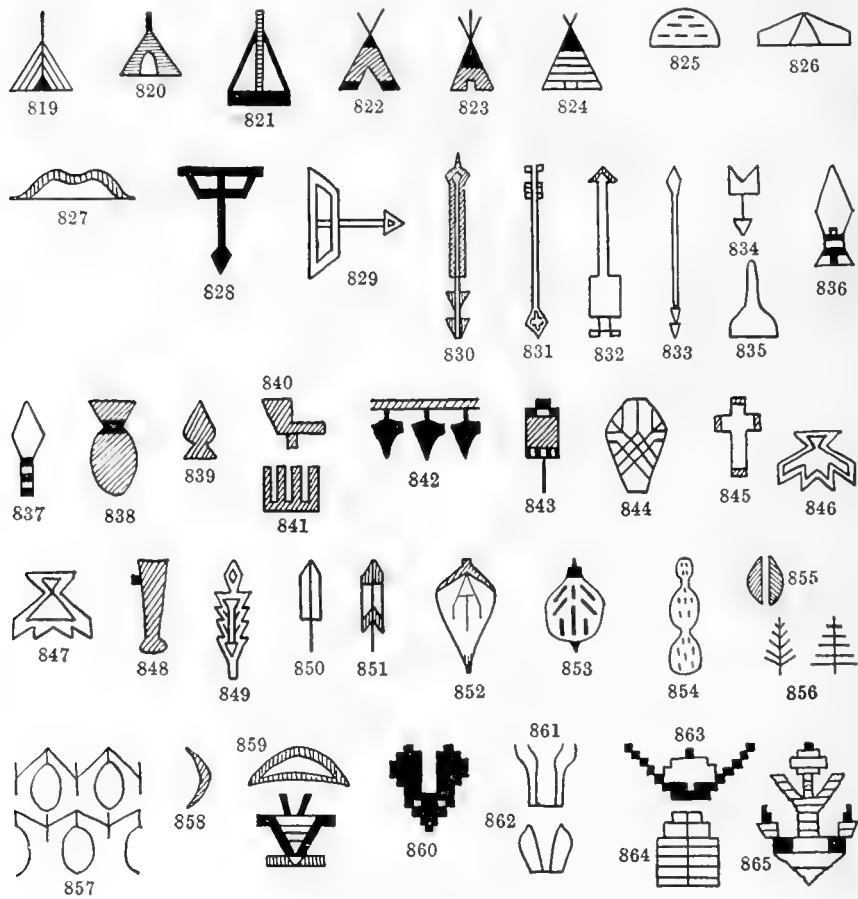
REALISTIC

784, 785. Little men.	798-803. Butterfly.
786-789. Leg, Foot.	804-806. Eagle, Bird.
790. Little deer.	807. Snake.
791. Deer.	808. Hammer, Comb.
792. Arrowhead, Star, Stretched bearskin.	809, 810. Hammer.
793. Otter.	811. Hammer, Comb.
794. Beaver.	812, 813. Comb, Single comb.
795. Sheep horns.	814-817. Lily root (Mula, Root of wild rice), Snake's tail.
796. Grouse tracks, Grouse feet, Bird's feet, Bird's tracks.	818. Tipi, Girl's lodge.
797. Crow, Bird.	

¹ This is sometimes a central figure on the basket wall, and is then surrounded by tail or head designs. The central diamond represents the heart; the cross, the head; and the checks, the ends of feathers.



SKETCHES OF DESIGNS



SKETCHES OF DESIGNS

PLATE 94

REALISTIC

- | | |
|---------------------------------------|--|
| 819. Tipi, Girl's lodge. | 840. Pipe. |
| 820. Tipi, Girl's lodge, Bird, Foot. | 841. Comb. |
| 821. Tipi, Girl's lodge, Earth lodge. | 842. Rattle, Deer-hoof rattle. |
| 822, 823. Tipi. | 843. Hand rattle. |
| 824. Tipi, Mat lodge. | 844. Rainbow, Necklace(?) Snowshoe. |
| 825. Sweat house. | 845. Catholic cross (Nicola, Gladwin rarely), Star |
| 826. House, Lean-to lodge. | 846, 847. Paint pouch (with fringe). |
| 827. Bow. | 848. War club. |
| 828, 829. Bow and arrow. | 849-851. Feather. |
| 830-832. Arrow. | 852-854. Cactus. |
| 833. Arrow, Notched feather. | 855. Leaf. |
| 834. Arrow. | 856. Tree(?). |
| 835. Drill, Arrowhead. | 857. Wasp's nest and tree branches. |
| 836. Arrowhead. | 858. Moon. |
| 837. Arrowhead, Paint pouch. | 859. Dream design of snare and animal. |
| 838. Arrowhead, Spearhead. | 860-865. (?) |
| 839. Arrowhead. | |

TWO PREHISTORIC VILLAGES IN MIDDLE
TENNESSEE

BY

WILLIAM EDWARD MYER

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TWO PREHISTORIC VILLAGES IN MIDDLE TENNESSEE

By WILLIAM EDWARD MYER

INTRODUCTION

The author spent the months of September and October, 1920, making explorations for the Bureau of American Ethnology in the Cumberland River Valley around Nashville, Tenn.

He made excavations on sites which he has named the Gordon town site and the Fewkes group. The excavations on these two sites brought to light the ruins of several buildings of the two ancient towns, with their altars and the remains of what appeared to be their sacred fires. Many relics throwing light on the customs of these people were unearthed. The several hundred fragments of pottery found in these excavations were all saved and studied. This enabled him to determine the size, shape, color, and material of what was probably nearly their complete line of domestic pottery.

Every fragment of bone found was saved. A study of these fragments by Mr. G. S. Miller, curator, Division of Mammals, United States National Museum, enabled him to determine with some accuracy their animal food which contained bones. In all this mass of bones not a single fragment of the bones of the bison was found. Does this mean that the town was deserted before the bison came into this region? They were later found in some numbers here.

The skeletal material from the graves was examined by Dr. A. Hrdlička, curator, Division of Physical Anthropology, United States National Museum, whose report appears at the end of this volume. He reports that the skeletons indicate rather a weak people, sub-average for Indians.

At a few places in this narrative the author has inserted descriptions recorded by early whites of ancient Indian life and towns which appear to very closely resemble those at the Gordon and Fewkes sites. These are already well known to all archeologists. They are given here in order that the general reader who is not an archeologist may form a better conception of the former appearance of these towns and the manner of life of the dwellers therein.

The author has endeavored to determine, if possible, who these people were. While here and there some clues appear, on the whole the evidence is so hazy and apparently contradictory that he thinks it unsafe to venture an opinion.

He gratefully acknowledges assistance from Dr. A. Hrdlička, Dr. John R. Swanton, Mr. Francis La Flesche, Mr. James Mooney, Dr. Walter Hough, Dr. W. E. Safford, Mr. G. S. Miller, Mr. Clarence B. Moore, Dr. R. S. Bassler, Mr. Wilbur A. Nelson, Dr. Truman Michelson, and many others. Due recognition has been given in each instance.

He desires to thank Mr. and Mrs. H. L. Gordon and Mr. J. H. Womack for friendly cooperation in allowing him to excavate the ruins on their respective estates.

He is under many obligations to Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, for much needed advice and for many courtesies.

A B

C D

E F

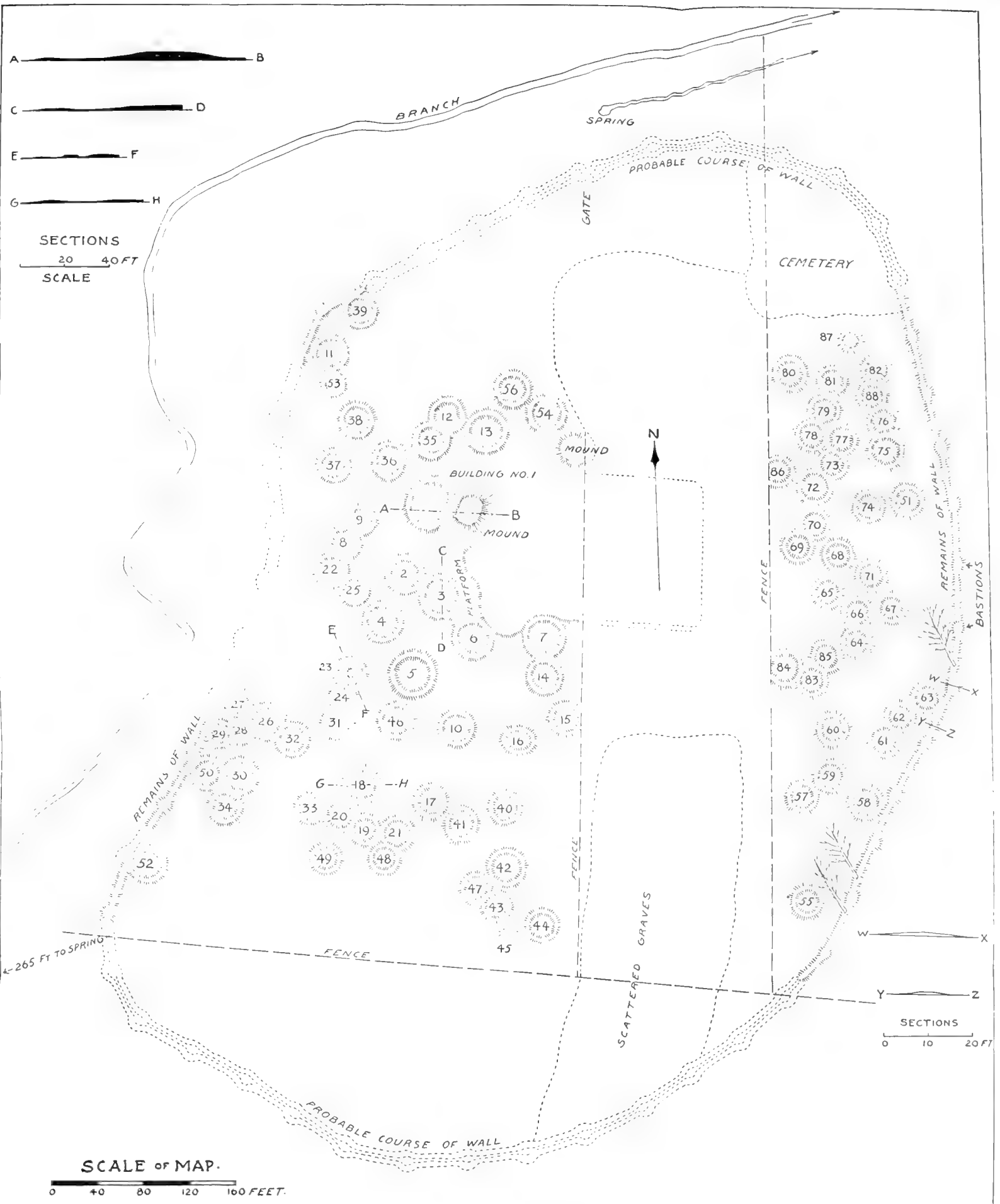
G H

SECTIONS

20 40 FT.

SCALE





MAP OF GORDON TOWN SITE

GORDON TOWN SITE

The first site explored was on the H. L. Gordon farm, 1 mile northeast of Brentwood, in Davidson County, Tenn. Here were discovered the remains of an ancient Indian walled town. These were in a woodland and had never been disturbed by the plow. It had long been known that there was a small mound at this point. Gen. G. P. Thruston had partially explored this mound, but no one had ever discovered, or at least grasped the significance of, the very faint saucer-shaped depressions which dotted the surrounding surface. No one suspected that here, a foot or so below this blue-grass sod, were the ruins of an ancient Indian town containing fragmentary remains which could bring to light many new and interesting details of the vanished life of a long-gone-by people. Faint traces of 87 house circles could be made out, and some slight indications of several more could be seen.

This town (pl. 95) covered 11.2 acres and was surrounded by an earthen embankment which formerly had supported a palisaded wall equipped with semicircular towers about every 55 feet.

The inhabitants for some unknown reason had deserted this village, and the site had never afterwards been occupied or disturbed. Nearly all the structures had been left standing. These had gradually fallen down, and their floors were wholly buried beneath from 14 to 20 inches of rich black loam. In some of these circles portions of beautiful, smooth, hard-packed, glossy black floors were found. In the centers were the ancient fire bowls, still filled with the ashes of the last fires kindled in these homes before their owners left them. Near these fire bowls could be seen the metates, mullers, and other household utensils just as left the last time used. Underneath the floors were the stone-slab graves of their children.

Near the center was a level open space which was evidently the town square, surrounded by important buildings.

Within the line of walls could be distinguished 87 very faint earth circles with shallow saucer-shaped interiors. These were the remains of ancient dwellings. There was evidence showing the town had originally contained about 125 circular buildings, ranging from 15 to 46 feet in diameter. A large proportion of these were 30 feet in diameter.

All the buildings were circular with the exception of one, which was probably used both as a town house and a ceremonial house or temple. Also the building on the mound adjoining this town house or temple may not have been circular.

Excavations showed the walls of these buildings to have been made of small upright posts or poles, from 2 to 6 inches in diameter, placed firmly in the ground. In this line of posts was interwoven a wattling of cane stems, with leaves still attached. In some of the houses the wattling was plastered over with clay and the surface smoothed with a trowel. The roofs of the circular houses were probably either conical or dome shaped. The roofs of the four-sided structures were probably round arched.

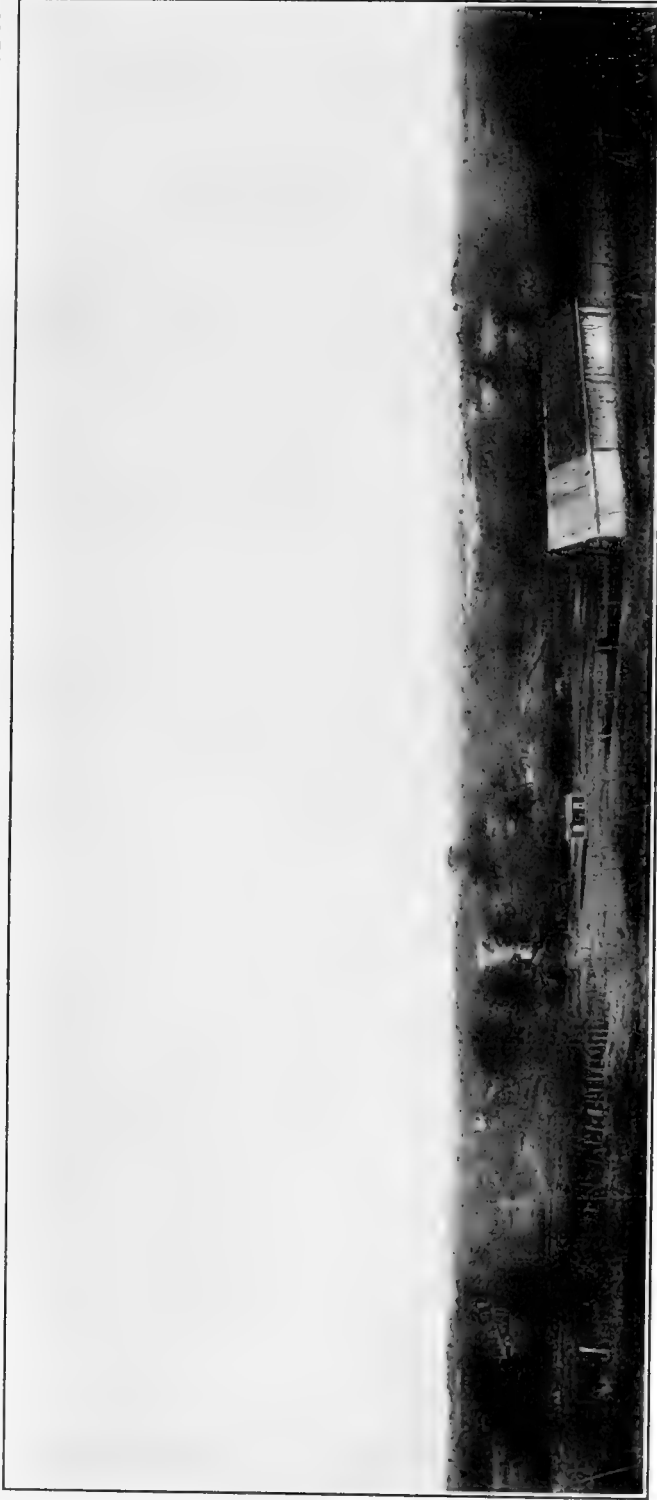
Lack of funds permitted the examination of only the central mound and 6 of the 87 house circles. These six yielded so much information in regard to the life of these people that it is probable the thorough exploration of the entire site would procure a fairly correct view of their everyday life. It would also shed much light on their religious beliefs and sacred rites.

Beyond question the causes of the selection of this site were the two large bold springs indicated on the map (pl. 95), the fertility of the soil, and the natural adaptability of the site to fortification.

INDIAN REMAINS IN CENTRAL TENNESSEE BASIN

This town was situated in the finest portion of the celebrated blue-grass region of the central Tennessee Basin. The soil owes its extreme fertility to the weathering of its phosphate-bearing rocks. The beauty of this region, which contains the remains of the ancient Indian towns at Gordon farm and Traveler's Rest, is brought out in the photograph shown in Plate 96. The fertility and beauty of this important section of the basin has appealed to all the successive waves of peoples which have come within the borders of what is now Tennessee. It has always been the thickest settled and the richest as well as the dominant section of the State.

Probably more important Indian remains are to be found within 60 miles of the Gordon site than in any other portion of the southern United States. Within this area are located the following: The great mounds at the junction of Dog Creek and Harpeth River, and the fortress at the junction of Harpeth and Cumberland Rivers in Cheatham County; the fortified Indian town at the junction of Duck and Piney Rivers in Hickman County; the Fewkes group and the De Graffenreid and Old Town ruins in Williamson County; the Greenwood group, the Cottage Home group, and the mummy burial cave in Wilson County; the fortified town at the junction of Dixons Creek and Cumberland River in Smith County; the fortified town at Castalian Springs and the Rutherford-Kiser mounds in Sumner County. There are over 200 other more or less important Indian sites within this area.



PANORAMA FROM TOP OF WILLIAMS KNOB



GORDON TOWN SITE



LARGE LINDEN



MOUND A AND HOUSE CIRCLES NOS. 1, 2, AND 3

PRESENT APPEARANCE OF GORDON TOWN SITE

The photograph reproduced in Plate 97 shows the present appearance of the western half of the Gordon town site. It is a gently rolling, almost level woodland, with a small remainder of the noble primeval forest which once covered the Central Tennessee Basin. The photograph does not show the finest trees on this site, which are principally beech, elm, and oak. Many of each of these species measure 13 feet in circumference 3 feet above the ground. The stump of one of these 13-foot elms showed more than 300 growth rings. The central portion of the stump being slightly decayed, it was impossible to determine the exact number. The accompanying illustrations show a few of these fine trees. The linden shown in Plate 98 measures $22\frac{1}{2}$ feet in circumference 5 feet above the ground. By its side is shown Dr. Harry S. Vaughan, of Nashville, who indirectly caused the discovery of the town by taking the author to see the small mound on this site.

A map of the Gordon town site is shown in Plate 95. Here are shown the open flat space which was the town square, the two low mounds at the northwestern corner, the portion of the town now nearly obliterated in the cultivated fields and garden, and the 87 saucer-shaped earth circles which can still be made out in the undisturbed grassy woodland. In the spaces left blank on the map, in the woodland, there are many faint indications of earth circles. Very likely a thorough excavation of the town site would show that all the space within the walls was filled with earth circles, with the exception of the town square and the spaces marked "Cemetery" and "Scattered graves." This would give about 125 buildings within the walls, as excavations showed each earth circle to be the remains of an ancient building.

All of the land around the town is now in cultivation with the exception of an undisturbed woodland on the gentle slope 300 feet to the east of the walls of the settlement. In this woodland, which extended 600 feet along the side of the town, were found only three small house circles. These were 9, 12, and 14 feet, respectively, in diameter and were from 50 to 100 feet distant from each other. This and other evidence would indicate that a very small number of the Indians lived in wigwams outside the walls of the town, and these could easily reach the protection of the fortifications.

It was not possible to ascertain whether any trace of a cleared spot, indicating cultivated fields belonging to this town, was in evidence when the region was first visited by the English about 1770. It is probable that the old Indian cultivated fields had many centuries before grown up into an open forest.

THE TOWN SQUARE

The nearly rectangular town square, near the center of the town, had been made level by cutting down the small slope on the southern side. This square was 130 feet from north to south and between 200 and 250 feet from east to west. Cultivation in the garden prevented determining its exact eastern limit. It was probably surrounded on all four sides by buildings or open sheds. The cultivated garden likewise made it impossible to determine this point with certainty.

In this town square much of the everyday social and religious life of the people centered. It was a convenient place for meeting and gossip and play or work. Here visitors of note were received; such open air sacred ceremonies as were public were performed; persons were tortured; many dances, both sacred and social, were held.

Many of the open-air games of chance or dexterity were played on this square, including the chunkey game, with its polished stone biconcave disks, its smooth and level surface making it admirably adapted to the purpose.

The Creek Indians had town squares very similar to that of the Gordon site. In the center of the Creek Indian square, during the celebration of the busk, was a fire fed by four logs, one log lying toward the east, one toward the south, one toward the north, and one toward the west. It is possible that the Indians of the Gordon site may have had a similar fire during certain rites in the center of this town square.¹

COOKING AND GRINDING

On several Indian town sites on the Cumberland Plateau in middle Tennessee were found large, moderately flat rocks, some of them fully 20 feet in width by as much in length, in which many mortar holes had been cut. On these rocks, near the mortar holes, were several much-used fireplaces. A fine example of these clustered mortar holes and fireplaces was discovered by the author at Winingham Rock on a cliff overlooking Obey River, near the junction with Eagle Creek, in Pickett County, Tenn. Here the women of the town gathered to grind and cook, to gossip, and play their games. The women at the Gordon site appear to have done their grinding and cooking in their own homes, as excavations brought to light a metate in each of several dwellings.

BURIALS

The ancient inhabitants of Gordon town site apparently buried all their dead within the walls of the town. With few exceptions the

¹ See diagram of square in Gatschet's "Migration Legend of the Creek Indians," vol. II, p. 186, reproduced and described in Fig. 126 and its accompanying text in this volume.

dead were placed in stone-slab coffins, bodies lying on the back, extended full length, arms by the side. Most of the adults and children over 12 years of age were buried in the cemetery on the gentle slope of the small knoll at the northeastern corner of the town and also in that portion of the south-central part marked "Scattered graves" (pl. 95). They buried a few of their adults immediately adjoining the outer walls of the dwellings.

Children from 5 to 12 years of age were sometimes buried in the cemeteries and at other times beneath the floors of the buildings. The very young children, less than 5 years, and also the fetuses, appear to have been buried beneath the floors of the dwellings. In some instances the little stone-slab coffins were immediately adjoining the domestic hearth. In other cases the grave was placed where the food ground on the metate would fall on the stone-slab top of the coffin.

MOUND A

Mound A, on the western edge of the town square, is the most prominent of the remains of the old village. It is shown in Plate 99. The base of this low, flat-topped mound is nearly rectangular, with rounded corners, and measures $44\frac{1}{2}$ by 39 by 37 by $33\frac{1}{2}$ feet. The mound is now from $4\frac{1}{2}$ to $5\frac{1}{2}$ feet in height. The flat top measures $20\frac{1}{2}$ by $18\frac{1}{2}$ by $21\frac{1}{2}$ by $18\frac{1}{2}$ feet.

Beginning at the northern edge of the base a space in the mound 32 feet in width and 30 feet in length was excavated through the original surface of the soil down to the undisturbed clay subsoil. Over two-thirds of the mound was thoroughly explored.

FIRES AT ERECTION OF MOUND

The erection of mound A appears to have been accompanied at different times and stages by various rites in which fire played a prominent part.

Before the raising of the mound had begun a large fire was built on the surface of the soil at what was to be the center of the base of the future mound. This fire had been allowed to burn itself out. It left a bed of pure white ashes, 8 by 9 feet, and 2 inches thick. This had been a temporary fire, as the soil underneath showed no signs of long-continued burning. On the original surface of the soil, 5 feet southwest of the above large central temporary fire, was a fire of different character. At this point a layer of clay, 3 by 3 feet, and 2 inches in thickness, had been brought from elsewhere and spread upon the surface of the soil. A fire had then been started and continued sufficiently long on this fire-bed or altar to hard-burn the clay, but not long enough to burn the black loam surface soil underneath it. Neither of these fires showed any signs of broken ani-

mal bones or of cooking or other domestic use. The one built on the clay fire-bed or altar probably was connected with the rite of greater importance, and was longer continued. A careful search of these fire-beds showed no objects deposited either in or below them.

CELEBRATIONS AT THE 16-INCH STAGE

When this mound had reached a height of 16 inches the builders must have ceased work for a time and celebrated with a great feast and different ceremonies, some of which must have continued several days. Here again fire played a conspicuous part. Near the center of what was then the surface of the mound another great clay fire-bed or altar had been made which covered a space 10 by 6 feet and was 2 inches in thickness. The ceremonies connected with this altar differed from those of the altar at the bottom of the mound, and at one stage included a great feast; for in the ashes were a large number of deer bones and the fragments of a large domestic pot, evidently the remains of a barbaric feast. After the feast, and while the fire was still well supplied with wood, earth was thrown on it and the burning wood smothered into a layer of charcoal 4 inches in thickness.

During this 16-inch stage celebration there appear to have been several ceremonies at various dates, each with its separate fire. Some of these rites must have continued for many days, as the fires connected with them had been continued long enough to make the soil underneath show the effects of heat for at least $2\frac{1}{2}$ inches. This burned soil was especially noticeable under the central altar and also under another fire which covered a circular space about 5 feet in diameter. The other fires at this stage were also somewhat circular but smaller and ranged from 2 to 4 feet in diameter. Some of the smaller fires appeared to have burned for a comparatively short time. None of these fires appears to have been used for cooking, with the exception of the great central clay altar.

CEREMONIES AT THE 30-INCH STAGE

When the further erection of mound A had been started and the mound had reached a height of 30 inches another series of ceremonies occurred; but these ceremonies were quite different from those of any of the previous stages. Five feet northeast of the center of the top of the mound at the 30-inch stage a great fire had been kindled. When this had burned down to a bed of glowing embers, clay had again been brought from elsewhere; but instead of being used as a fire-bed or altar, as formerly, it was now carefully spread out like a blanket over this great bed of glowing embers, smothering it into a bed of ashes and charcoal. This blanket of clay was 5 by $4\frac{1}{2}$ feet in diameter and $1\frac{1}{2}$ inches in thickness.

A somewhat similar blanket of clay, covering a bed of once glowing embers, was found 4 feet southwest of the center of the top of the mound at the 30-inch stage. No traces of feasts appear at the 30-inch celebration.

BUILDINGS

The two-thirds of this mound explored contained no burials. While no trace of a building was found, it is probable that its level top, $20\frac{1}{2}$ by $18\frac{1}{2}$ by $21\frac{1}{2}$ by $18\frac{1}{2}$ feet, supported some important structure. The ruins of what appeared to be the town house or temple immediately adjoined this mound on the west, and, as the eastern and apparently only door of this town house opened onto the top of the mound, it is likely the mound had on it either the house of the chief or an open shed. Under this shed public rites or open meetings could be held in bad weather. Many of the buildings in the Indian towns in the south had such sheds or piazzas attached to them.² The Creek Indians had a town arrangement of town square and mound sheds somewhat resembling this at the Gordon site.³ It must not be understood that any intimation of relationship between the Gordon site people and the Creeks is intended.

ABSENCE OF UNCHARRED WOOD

At no point in this town were traces of wood or wooden structures found except where the wood had been reduced to charcoal. When uncharred and left to natural decay, all trace of wood vanished. It is well to note that no postholes, save those with charred wood, were found. It is therefore impossible to state with certainty that structures existed where no trace was found.

THE TEMPLE

House circle No. 1 of the map is on the western side of mound A. It is shown in Plate 99. This probably was the ruins of a building which combined the functions of a town house and a ceremonial building or temple; or it may have been used solely as a temple. There were examples of both types of buildings found among the early Indians in the Southern States.

This building is referred to as a temple because the word "temple" most nearly conveys a correct conception of its use by the ancient Indian worshipper.

The Cherokees and several other southern tribes used such buildings as temples for both secret and public rites, and also as town houses for public gatherings. In the town house visitors of note were sometimes lodged. Unfortunately buildings of this character became

² See the various narratives of De Soto's journey.

³ See Gatschet's "Migration Legend of the Creek Indians," vol. 1, p. 186.

known to the early whites as town houses, and their priests as medicine men or jugglers. These names are somewhat misleading.

The Natchez and many other tribes of the South used these buildings solely as temples, with priestly attendants and solemn, though barbaric, rites.

The building in house circle No. 1 is referred to as a temple because the preponderance of evidence indicates it was used solely as a temple

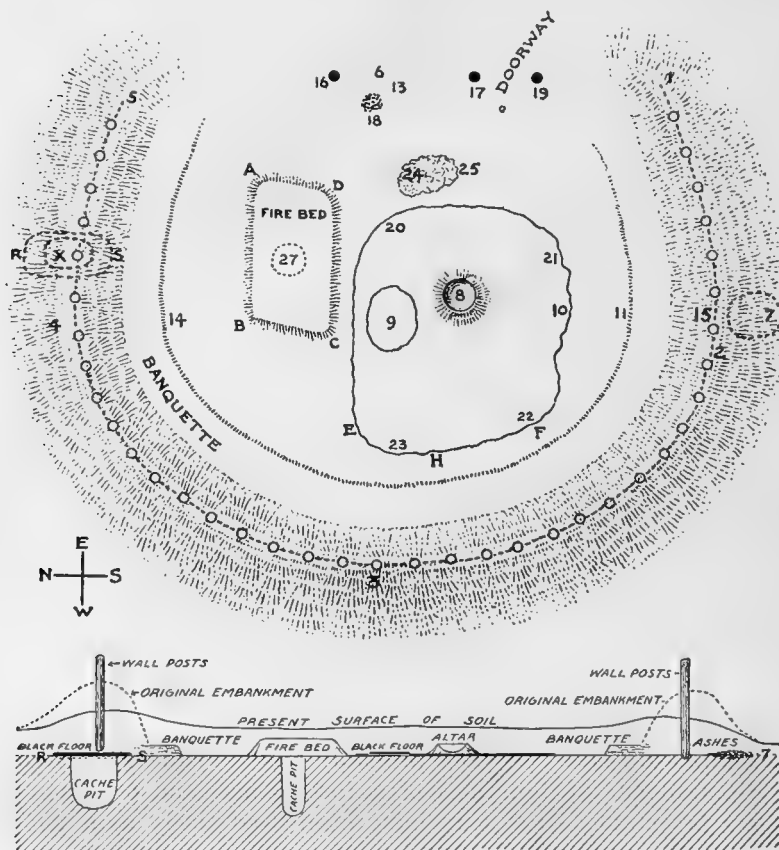


FIG. 123.—Diagram of temple

A diagram of this temple is shown in Figure 123. Its eastern wall, 1, 6, 5, appears to have been straight. Its northern, southern, and western walls were somewhat curved. It measured: 1 to 5, 37 feet; 2 to 4, 46 feet; 3 to 6, 33 feet.

This building appeared to have had walls consisting of upright posts from 4 to 6 inches in diameter, set from 2 to 3 feet apart. In and out between these posts a wattling of cane stems, with leaves still attached, had been interwoven. This rough wattled wall was then plastered, within and without, with a clay mortar which was

smoothed with pottery trowels resembling our modern flatirons in shape. The mortar was mixed with the tough grass found in the neighborhood. The grass served as a binder, similar to the straw used in the Egyptian bricks and in modern adobe. The early whites saw the southern Indians building such houses and applying such mortar. The Indians softened the clay with water and then kneaded the grass into the mass with their bare feet. Farther south they often used long gray moss as a binder.⁴ The combined action of the attached cane leaves and the binding grasses must have caused the mortar to adhere closely to the walls. Nothing was found which would indicate the exact shape of the roof, its means of support, or the nature of its covering.

This temple appears to have been destroyed by fire in some unknown manner, at some date after the Indians had removed all their belongings. At several points in the interior of house circle No. 1 were found small fragments of the fallen-in, burned, clay-plastered walls. At 24-25 in Figure 123 a large mass of this material was found on the floor. It had not been disturbed since it had fallen in. This fragment of the burned plastered wall showed the cane stem wattling with the leaves still attached to the stems. The casts of the wild grass binding material could also be clearly seen.

CEREMONIES AT ERECTION OF TEMPLE

A study of this house site and the diagram in Figure 123 brings out the following facts: This building was erected with many ceremonies. The ground on which it was to stand appears to have been cleared and the black loam removed down to the original clay subsoil. Then, at X, where the earthen rim and the wall of the temple were to be erected, a cache pit, 43 by 27 inches, and 52 inches in depth, was dug in the clay subsoil. In this cache pit probably some sacred object was placed, which contained no bone or stony material. The black earth which filled this pit retained no hint as to the character of object, if any, placed therein. It evidently consisted of some substance like fur, feathers, or wood, which left no recognizable trace other than the loose black soil. After this cache pit had been filled, a small layer of clay, 12 by 10 inches, and 1½ inches in thickness, was brought from elsewhere and spread on top of the pit. A strong fire was then built and continued upon this little clay cover sufficiently long to hard-burn the cover and make the soil underneath show the effect of fire to a depth of 2 inches.

⁴ See Swanton's "Indian Tribes of the Lower Mississippi Valley," Bull. 43, Bur. Amer. Ethn., p. 59. 53666°—28—33

CACHE PITS

In like manner another cache pit, 27, with similar contents, was dug and filled. This one was 20 inches in diameter and 5 feet in depth. Over this pit the platform, *A, B, C, D*, of black loam was raised. This was covered with a layer of clay brought from elsewhere. The platform was built up to a height of about 17 inches above the surface of the floor. It was used as a fire bed.

Another similar cache pit was found at 18, near the doorway on the eastern side. It was 14 inches in diameter and 4 feet in depth and filled with the same character of black soil as the other pits in this circle. No recognizable trace of original contents could be found. This last pit had no clay cover.

That pits *X* and 27 were receptacles for sacred objects or sacrifices connected with the building of this edifice, and not intended for domestic storage pits, is proved by the fact that they had coverings of clay upon which fire had been long continued, and these fire-hardened covers were never afterwards removed. They showed no signs of disturbance such as would have been necessary to get at the contents of domestic cache pits underneath. It will be interesting to compare these pit caches with the somewhat similar ones of the later Omahas, reproduced in Figure 131.

At 7, Figure 123, on the site of the future southern earth rim of this temple, a ceremonial fire was built and continued long enough to form a deep layer of pure white ashes. This fire was not for domestic purposes. It contained no fragments of animal bones or pottery. After these elaborate rites had been completed the level, hard-packed, earthen floor was covered with a layer of clay brought from elsewhere. This layer of clay was then smoothed and hard packed and also still further hardened by fires being built upon it. After this hardening process a space about 3 feet in width and extending from *R* to *S* and another space at 9, about 3 by 4½ feet, were covered with a coating of a black, hard, glossy substance, ranging from one-fourth to three-eighths of an inch in thickness. This substance was clay mixed with some very black material which took a beautiful black glossy finish, somewhat resembling the appearance of polished black iron stovepipe. This coating once extended over much of the space in the center of the temple and was later worn away by use. It still retained a considerable amount of luster when uncovered but faded on exposure to the air. It must have presented a very pleasing and appropriate appearance. That this floor was put down before the walls of the temple were raised is proved by the fact that it was found extending underneath the wall from *R* to *S*.

There is some slight indication that an earthen platform or banquette, raised about 9 inches above the floor, extended partially around the room next to the wall; the evidence, however, is not conclusive.

ALTAR

An ancient altar or fire bowl was found 3 feet south of the center of the house circle. This altar was built on top of the floor. It was still partially filled with the fine, firm, pure white ashes of the ancient fires. A photograph of this altar is shown in Plate 100. Its bowl is 29 by 27 inches, outside measure, and the interior is $4\frac{1}{2}$ inches deep.

The edge of the rim was 7 inches above the surface of the floor on which it rested. A diagram is shown in Figure 124. It appears to have been made by placing a layer of ordinary earth on the floor at this point. In the layer of earth a depression was made, corresponding to the exterior of the basin-shaped altar. This carefully shaped depression was next lined with a coating of puddled clay about $1\frac{1}{2}$ inches in thickness, which was then hardened by fire. The hard-burned appearance of the altar and the floor under it indicated its long continued use.

That this was an altar and not merely a fire bowl for domestic cooking is shown by the fact that the ashes in it contained no animal bones and no fragments of domestic or other pottery, such as are usually found in fires long used for the latter purpose.⁵

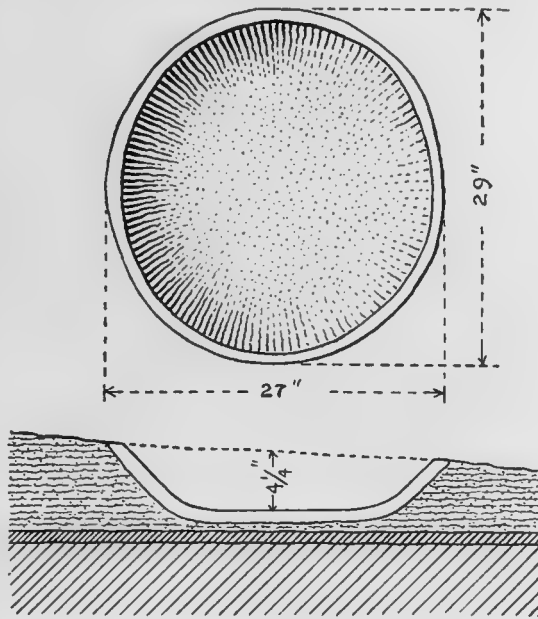


FIG. 124.—Diagram of altar

FIRE BED

That this fire bowl was an altar which contained a ceremonial fire, not even to be profaned by use in warming the inmates, is further confirmed by the fire bed found at *A, B, C, D*, Figure 123. This fire bed probably was used for occasional heating purposes, and preparing feasts.⁶ As already stated, it covered cache pit 27. It measured: *D* to *C*, 9 feet; *A* to *B*, $7\frac{1}{2}$ feet; *B* to *C*, $5\frac{1}{2}$ feet; *A* to *D*, 5 feet.

⁵ This altar was incased in reinforced plaster and removed to the Bureau of American Ethnology at Washington.

⁶ See Charlevoix's account of Natchez temple, reproduced on p. 508.

At the building of the temple, when the black loam surface soil was removed down to the clay subsoil in order to obtain a hard floor, after filling cache pit 27, they raised over it a low platform, 17 inches above the remainder of the clay subsoil floor. This is shown by the 17-inch layer of black soil found under the clay fire bed. On this raised earthen platform was spread a layer of clay, brought from elsewhere, and mixed with cane stems with leaves attached. This formed a fire bed. That this layer was not part of the plastered wattled wall, fallen in when the building was burned, like that found at space 24-25, is proved by the fact that the surface of the fire bed is not sharply rough and uneven and lumpy like that on space 24-25. It shows signs of smoothing and wearing down, caused by the raking away of ashes and the other wear of long use as a fire bed. It was not burned as hard as the clay in the altar. What remained of it after its long wearing down varied from one-half to $2\frac{1}{2}$ inches in thickness. The soil underneath it showed the effects of fire to a depth of from 1 to $2\frac{1}{2}$ inches. The burning of the light, plastered, cane-wattled wall would not have been long enough continued to have affected the underlying soil to such a depth.

On the dotted area 24-25 was found a low, irregular, rough, lumpy layer of hard-burned clay, which contained the impressions of cane stems with the leaves attached. This had every appearance of being a portion of the old clay-plastered wattled wall, fallen inward when the building was destroyed by fire.

CEREMONIAL FIRES AT THE FOUR WORLD QUARTERS

At 8, 13, 14, and 15, Figure 123, were found traces of small fires. At 8 was a large fragment of log, 12 inches long and 4 inches in diameter; lying diagonally across this was the charred fragment of another log, 24 inches long and 5 inches in diameter.

At 13 were found the remains of a single fragment of charred log, about 8 inches long and 4 inches in diameter. It was lying at an angle of about 25 degrees in a large bed of loose black earth, in which was a large number of small fragments of charcoal. This loose black earth showed traces of the action of fire.

At 14 two fragments of charred logs, each about 20 inches long and 5 inches in diameter, were found, one lying diagonally across the other.

Two similar-sized charred logs, one lying across the other, were found at 15.

There were no large beds of ashes at any of these four points such as would arise from fires in continuous operation at the same point for a long period of time. Neither did the soil under these piles of charred logs show signs of long-continued heat. Everything pointed

to their being the remains of fires of no great intensity, probably not often used, and then for only a few hours at a time.

It will be noted that these fires are approximately at the four cardinal points or four world quarters. Later in this record it appears that the four cardinal points or four world quarters and the spirits dwelling therein played an important part in the religious beliefs of this people. It is therefore highly probable that these four fires were lighted at the celebration of rites in which the four world quarters played a part. The appearance of the deeply burned soil underneath the central altar indicates fires of long continuance.

That this was either a temple or a town house is further indicated by finding therein nothing which belonged exclusively to domestic use. Only about one-fourth as many fragments of animal bones and pottery were found scattered through the accumulated black loam which covered the ruins of this building as were found in that covering the ruins of buildings unmistakably for domestic purposes. These fragments of bones and pottery were such as might accumulate from occasional feasts.

OTHER TEMPLES OF THE SOUTHERN INDIANS

A study of some of the temples seen by the earlier explorers in the Gulf States will aid in arriving at the probable use and appearance of Gordon temple. It must be borne in mind that the tribes were different and their structures probably more or less dissimilar.

The temple of the Taensas in Louisiana was 30 by 12 feet. The well-known temple of the Natchez, a few miles from the site of the present city of Natchez, Miss., was about 30 by 30 feet.

The dimensions of the Gordon temple are 46 by 33 feet. It is therefore larger than either of the above well-known temples.

As an aid to getting at least an approximate idea of the use and appearance of the Gordon temple, Dr. John R. Swanton's translation of a portion of the description by Du Pratz of the Natchez temple is here reproduced, with the illustration accompanying the same (pl. 101, *a*).

It must not be supposed that the temple and its uses would be precisely the same among tribes so far separated and so different from each other as those of the Gordon site and those around Natchez.

This temple, the front of which looks toward the rising sun, is placed on a mound of earth brought thither which rises about 8 feet above the natural level of the ground on the bank of a little river. * * * This temple measures about 30 feet each way. The four angle or corner posts are of the inner part of the cypress, which is incorruptible. These trees in their actual condition appear to have a diameter of a foot and a half. They rise 10 feet out of the earth and extend to the beginning of the roof. The Natchez state that they are as much in the earth as above it, a fact which must make it secure against the winds. The other posts are a foot in diameter and are of the same wood, having the

same length in the earth as above it. The wall is a rough mud wall entirely smooth outside and a little sunken between every (two) posts inside in such a way that it is not more than 9 inches thick in the middle.

The interior of this temple is divided into two unequal parts by a little wall which cuts it from the rising to the setting sun. The part into which one enters may be 20 feet wide and the other may be 10, but in this second part it is extremely gloomy, because there is only one opening, which is the door of the temple itself, which is to the north, and because the little communicating door is not capable of lighting the second part.

There is nothing remarkable in the inside of the temple except a table or altar about 4 feet high and 6 long by 2 broad. On this table is a coffer made of cane splints very well worked, in which are the bones of the last great Sun. The eternal fire is in this first part of the temple. In the other and more secluded part nothing can be distinguished except two planks worked by hand on which are many minute carvings (*plusieurs minuties*) which one is unable to make out, owing to the insufficient light.

The roof of this temple is a long vault, the ridge pole of which is not more than 6 feet long, on which are placed representations of three great birds (carved) on flat pieces of wood. They are twice as large as a goose. They have no feet. The neck is not as long as that of a goose, and the head does not resemble it. The wing feathers are large and very distinct. The ground color is white mingled with feathers of a beautiful red color. These birds look toward the east. The roof is very neat outside and in. In fact, the structure and roof appear of a perfect solidity.

* * * * *

It is in this temple that two men tend the perpetual fire during each quarter of the moon. There are eight guardians for the four quarters, and a superior who is called chief of the guardians of the fire to command them and to see that they do their duty, and to have the wood brought for this fire. This wood must be clear wood. They employ for it only clear white walnut (or hickory) without bark. The logs are 7 to 8 inches in diameter by 8 feet long. They are placed near the temple about the trunk of a tree with a rather short stem. This tree is covered with thorns from the earth to the top. I have given a description of it in the natural history under the name of passion thorn. I have never been able to find out why they have respect for this tree wherever they find it, unless it be on account of the employment to which it is destined. These guardians are interested in preserving the fire, for it costs their lives to let it go out. There is besides, for the service of the temple, a master of ceremonies, who is also the master of the mysteries, since, according to them, he speaks very familiarly to the spirit. In the great ceremonies he wears a crown which has feathers only in front and is thus a half crown. He also has in his hand a red baton ornamented with red or white feathers according to the requirements of the feast. Above all these persons is the great Sun, who is at the same time high priest and sovereign of the nation.⁷

CHARLEVOIX'S ACCOUNT OF NATCHEZ TEMPLE

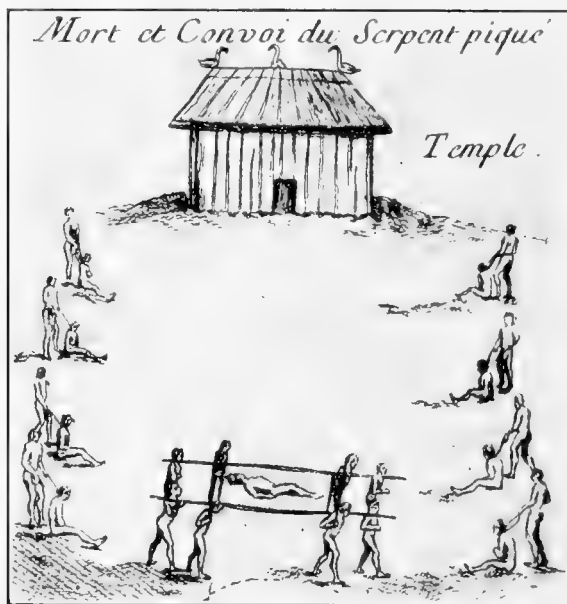
Charlevoix's journal describing this Natchez temple says:

The temple is very near the great chief's cabin, turned toward the east, and at the end of the square. It is composed of the same materials as the cabins, but its shape is different; it is a long square, about 40 feet by 20 wide, with a common roof, in shape like ours. At the two ends there are what appear to be two weather cocks of wood, which represent very indifferently two eagles.

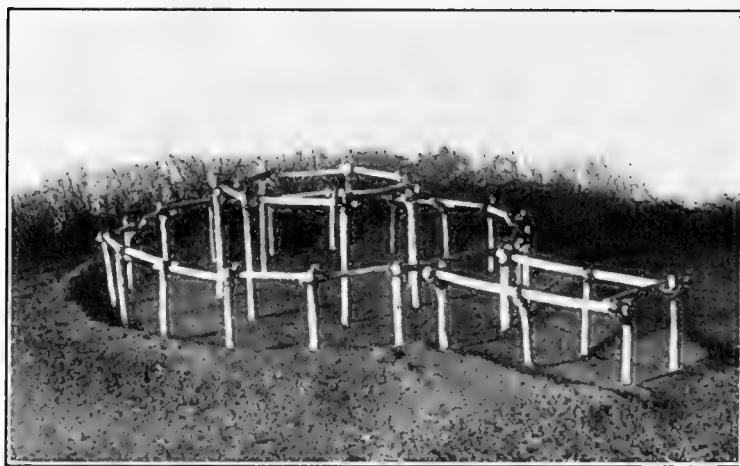
⁷ Indian tribes of the Lower Mississippi Valley, Bull. 43, Bur. Amer. Ethn., pp. 162-163.



ALTAR IN TEMPLE, CIRCLE NO. 1



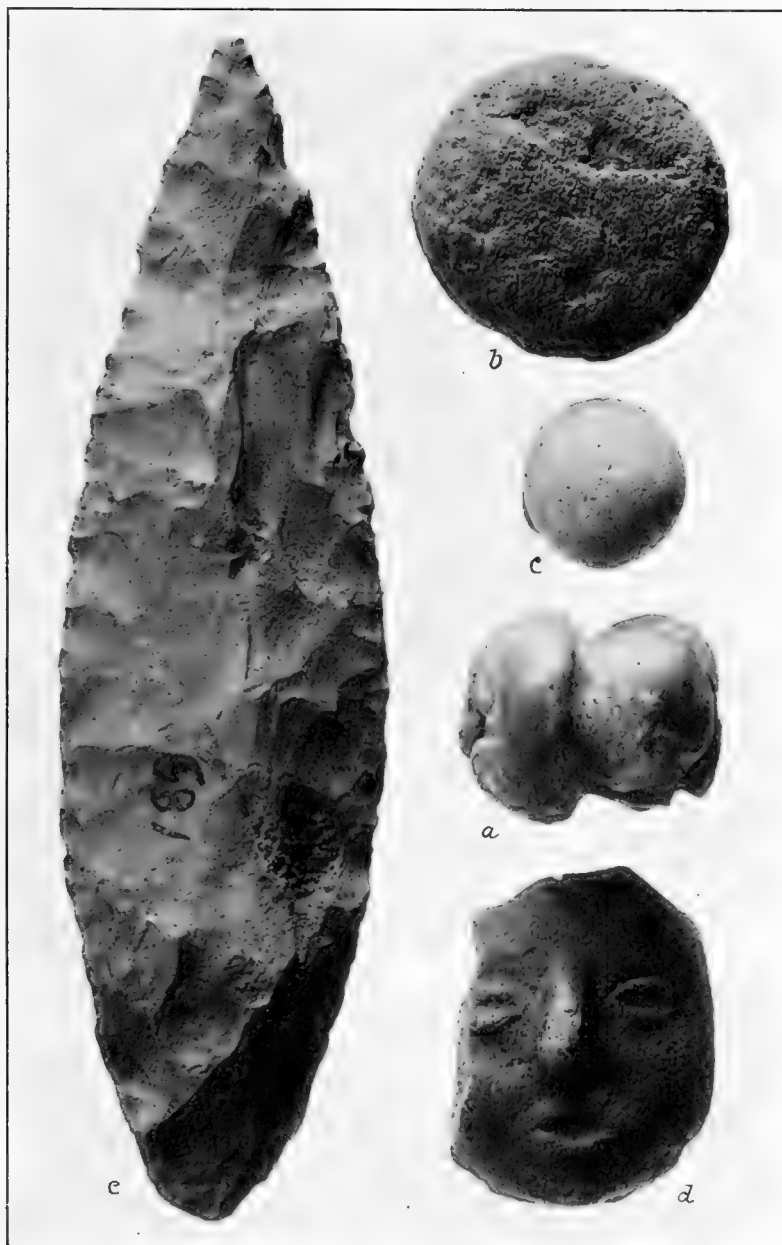
a



b

a, Natchez temple (from Du Pratz)

b, Framework of lodge



a, Hourglass-shaped bead
b, Small stone discoidal
c, Spherical object

d, Pottery head
e, Leaf-shaped chert implement



a



b

a, Grave No. 7

b, Portion of house circle No. 3

The door is in the midst of the length of the building, which has no other opening. On each side there are benches of stone. The inside perfectly corresponds to this rustic outside. Three pieces of wood, which touch at the ends and which are placed in a triangle, or, rather, equally distant from each other, take up almost all the middle of the temple. These pieces are on fire and burn slowly. A savage, whom they call the keeper of the temple, is obliged to tend the fire and prevent its going out. If it is cold, he may have his fire apart, but he is not allowed to warm himself at that which burns in honor of the sun. * * *

OBJECTS FOUND IN BLACK LOAM COVERING TEMPLE

Scattered through the black loam which covered this temple circle were found the lower jaw of an adult black bear, two teeth of a black bear, an hourglass shaped bead of black pottery (pl. 102, *a*), and a small rude stone discoidal, $1\frac{1}{2}$ inches in diameter and five-eighths of an inch in thickness. This discoidal is shown in Plate 102, *b*.

THE TOWN SQUARE

MOUND B

The low, oval, almost flat mound B, at the northwestern corner of the town square, is 41 feet across the base from *A* to *B* and $2\frac{1}{2}$ feet in height, *C* to *D*. (See vertical section in fig. 125.)

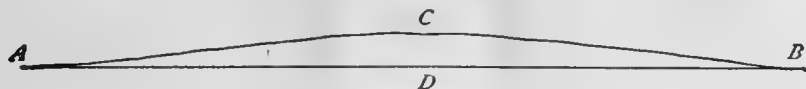


FIG. 125.—Vertical section of mound B

Fire ceremonies played a considerable part in the erection of this mound; but its rites were quite different from those in the erection of mound A, diagonally across the corner of the square. The many such differences found in mounds whose contemplated uses were entirely different lead to the belief that each type of mound probably had appropriate, distinctive sacred rites peculiar to its intended use.

At the center of the proposed mound an irregularly shaped layer of clay, approximately 40 inches in length and 27 inches in width, had been spread to a depth of 4 inches on the original surface of the soil. A heavy and long-continued fire had been kept on this layer of clay or altar until it had been hardened and the soil underneath it more or less burned to a depth of 4 inches. This made a total depth of 8 inches showing the effect of long-continued strong heat on this clay altar. Then, before any earth was piled on top of this burned clay bed, all the ashes and débris were carefully removed; but the clay was left undisturbed. This removal of ashes was quite different from any rites used in the construction of mound A. If there was

* Swanton, op. cit., pp. 159-160.

any feasting in connection with the fire, all traces were removed with the ashes.

The mound was then raised to its present height. Traces of two or three small beds of ashes, in different portions of the mound, showed that ceremonies, accompanied by small fires, had been performed at various stages of its erection.

In the original clay subsoil, 10 feet east of the center of the mound, was a rifled stone-slab grave. It contained a few bones belonging to an adult, and also some belonging to a child about 10 years of age. It was impossible to determine whether or not both had been buried in this one grave. If so, they must have been placed in it after decay of the flesh, as the coffin, while of the usual adult size, was too small

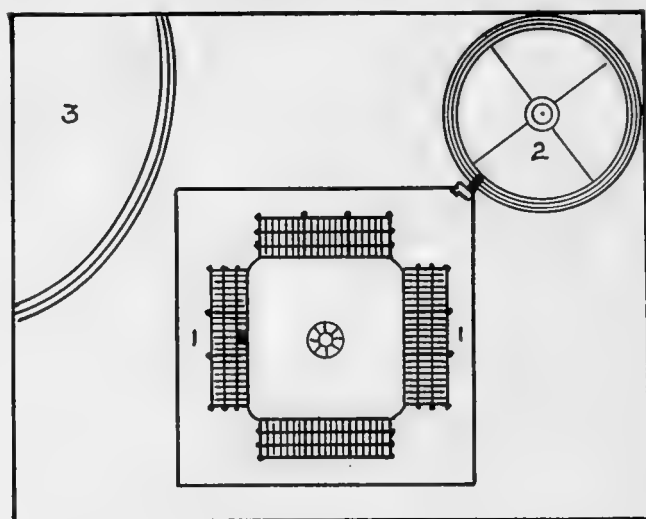


FIG. 126.—Site of the public square, hot house, and chunky yard

to have held both bodies if buried at the same time before the decay of the flesh.

USE OF MOUND B

The use to which this mound was put is not clear. If the adjoining town square had an arrangement somewhat similar to the ancient Southern Creek town shown in Figure 126 it is very probable this mound supported a building such as the early whites called a hot house. This hot house was used both for ceremonials and for other public purposes, especially in cold weather. It must not be confused with so-called sweat houses.⁹ No trace of this building, if it ever existed, was found. However, it must be remembered that the age of the Gordon town site is such that all wooden objects have disappeared except those that became charred.

⁹ See Swan's description of such a hot house in an Alabama Creek town in 1791, reproduced in this volume, p. 514.

THE TOWN SQUARE OF THE CREEK INDIANS

The town square of some of the Creek towns will likely throw some light on the plan and uses of the Gordon town square. Two very good accounts of typical Creek town squares are here given.

Figure 127 is a reproduction of a diagram¹⁰ representing the town square of Kasi'hta, a Creek town "on Deep Fork west and east of Okmulgee," in what is now Oklahoma, as it appeared about 1888. It throws an interesting side light on the appearance of the town

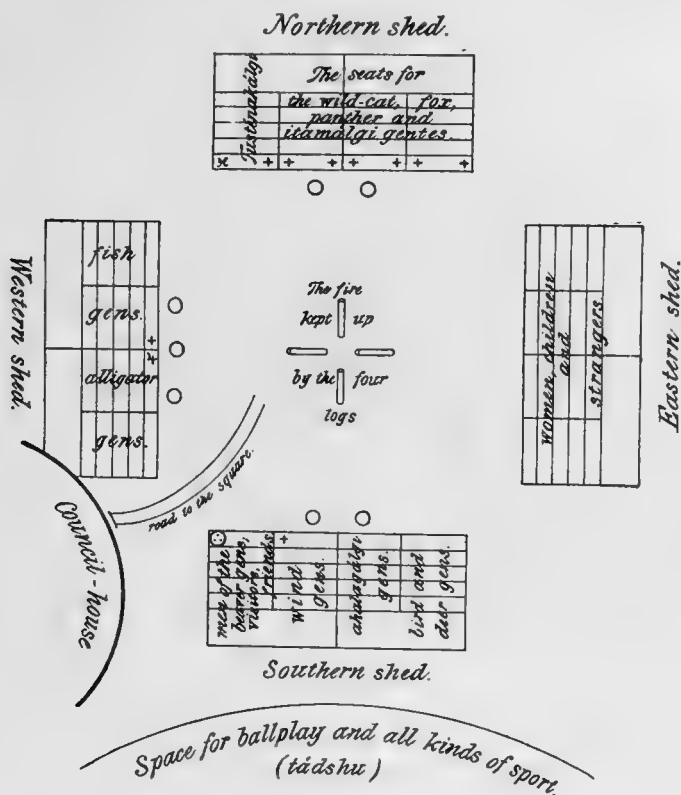


FIG. 127.—Diagram of the Kasi'hta town square

square and the uses of the building thereon, during the celebration of one of the many different great sacred ceremonies of the Creeks.

Although the diagram appended intends to represent the town-square of Kasi'hta town in particular, it may be regarded as an average reproduction of all of the town houses, or *tchúko 'láko*, as found to exist at the present time in the few settlements of the Creek Nation, Indian Territory, which have preserved the antique institution of the busk or *púskita*.

The four sheds are rather low and of equal size and construction, each facing one of the four points of the compass; the roof rests on five supports, and thus

¹⁰ Gatschet's "Migration Legend of the Creek Indians," vol. II, p. 186.

each shed is divided into four parts. The front of each measures about forty feet, and open passages are left between. Each shed stands upon ground sloping forward, is open behind, and on its floor contains from 12 to 15 logs running parallel and intended for seats. The sheds or *túpa*, lit. "scaffolds," are entered from behind; the space under the seats is reserved for the storage of objects needed during the celebration of the busk, which formerly lasted eight days, but is now in several towns reduced to six or even four days.

The council house, rotunda, or *tchukófa 'lako*, where meetings were held only in winter and during bad weather, is built into the southern end of the western shed, and a road leads from its door to the square and fireplace, upon which the people often moved in file or procession. South of the southern shed is the *tádshu* or area surrounded by an earth wall, where games and dancing have full sway. In the town of Tukabatchi this area lies behind the western shed. The four logs which feed the sacred fire lie in the center of the square, and each in the direction toward one of the points of the compass.

The sheds and partitions assigned to each of the gentes and divisions of the people vary greatly from town to town. *Tálua 'lako*, now the only busking town of the Hitchiti connection, disposes them, according to G. W. Stidham, in the following order: The western shed is assigned to the *míkalgi*; the south shed to the *tassikáyalgi*, familiarly called *boys*; the east shed to the women and children; the north shed to the *tasténakálgi* or "warriors." The details of the present diagram refer to the square of *Kasí'hta* town on the Deep Fork of Canadian River and were obtained from chief *Ispahídshi*, who is a native of that town and well acquainted with its present and earlier customs.

Following his indications, the seats of the *Kasí'hta* square are occupied as follows during the busk festival: The western partition of the *northern shed* is held by the warriors or *tusténákis*, the three others by the wild cat, fox, panther, and *itamálgi gentes*. The front seat in the westernmost corner is occupied by the *hú'li opunáya* or *war-speaker* (X), who had to be consulted on war questions and military matters and has been compared to our "Secretary of War." The other seven front seats next to each partition pillar (+) are held by busk officials called *Imá'la*, who had to act as masters of ceremonies. Two pots filled with *míko-huyanidsha* stand in front of the shed upon the area of the square.

In the *western shed* one of the middle front seats is occupied by the town chief, or *míko* (U), who among the *Kasí'htas* is always selected from the bear clan, or *nokusálgi*. Immediately to the north of him sits the vice chief (+), who is elected from the bear clan also. Around and behind these dignitaries the men of the alligator and the fish gens are occupying seats. Three pots of black drink, etc., are placed in front of this shed.

The western front seat of the *southern shed* is assigned to another dignitary, called *Kósi míko* (©), selected from the beaver gens exclusively. He and the *tálua híniha 'lako*, or "grand híniha of the town," who sits in the partition corner next to him (+), had the privilege of appointing another *míko* in case of death or incapacity, provided the two agreed upon the same person. They tried by their most suggestive means of oratory to persuade him to accept the office; afterwards he was silently recognized as chief by the whole community. In the same shed are sitting, in succession from west to east, the men of the beaver, wind, *ahalakálgi*, bird, and deer gens. Two pots stand in front of the southern shed.

The *eastern shed* is not occupied by any officials, but reserved to women, children, and strangers. No medicine pots are placed in front of this shed.

* * * * *

After the participants have arrived and made themselves ready on the first day, the second day of the *Kasí'hta* busk becomes the great joyful day for young

and old. Being a sort of mardi gras, it is called by the Creeks the "day of all-day eating," or *níta húmpi isyáfkitá*. Since men are detailed for almost every conceivable ministration connected with the busk, the chiefs send out on the morning of the second day four men for logs to kindle the "new fire." They cut them as large as each man can carry, and deposit them on the four corners of the square, where they have to remain for that day. Then the logs are brought together with their ends so close as to allow the fire to burn between them, and on the last day everybody has to take home some of the new sacred fire (called so because kindled ceremonially), and extinguish the old fire upon his fireplace.¹¹

Swan's diagram (fig. 126) is here reproduced with his explanation of a typical Alabama Creek town square in 1791.¹²

The public squares, placed near the center of each town, are formed by four buildings of equal size, facing inward, and inclosing an area of about 30 feet on each side. These houses are made of the same materials as their dwelling houses, but differ by having the front which faces the square left entirely open, and the walls of the back sides have an open space of two feet or more next to the eaves, to admit a circulation of air. Each of these houses is partitioned into three apartments, making twelve in all, which are called the cabins; the partitions which separate these cabins are made of clay, and only as high as a man's shoulders, when sitting. Each cabin has three seats, or rather platforms, being broad enough to sleep upon. The first is raised about two feet from the ground, the second is eight inches higher, and the third or back seat, as much above the second. The whole of the seats are joined together by a covering of cane mats as large as carpets. It is a rule, to have a new covering to the seats every year, previous to the ceremony of the busk; therefore, as the old coverings are never removed, they have, in most of their squares, eight, ten, and twelve coverings, laid one upon the other.

The squares are generally made to face the east, west, north, and south. The center cabin, on the east side, is always allotted to the beloved, or first men of the town, and is called the beloved seat. Three cabins, on the south side, belong to the most distinguished warriors; and those on the north side to the second men, etc. The west side is appropriated to hold the lumber and apparatus used in cooking "black drink," "war physic," etc. On the post, or on a plank over each of the cabins, are painted the emblems of the family to whom it is allotted, to wit: The buffalo family have the buffalo painted on their cabin, the bear has the bear, and so on.

Up under the roofs of the houses are suspended a heterogeneous collection of emblems and trophies of peace and war, viz, eagles' feathers, swans' wings, wooden scalping knives, war clubs, red-painted wands, bunches of hoops on which to dry their scalps, remnants of scalps, bundles of snake-root war physic, baskets, etc.

Such posts and other timbers about the square as are smooth enough to admit of it have a variety of rude paintings of warriors' heads with horns, horned rattlesnakes, horned alligators, etc.

Some of the squares in the red or war towns, which have always been governed by warriors, are called painted squares, having all the posts and smooth timber about them painted red, with white or black edges. This is considered a peculiar and very honorary mark of distinction. Some towns also have the privilege of a covered square, which is nothing more than a loose scaffolding of canes laid on poles over the whole of the area between the houses. Whence these privileges arose, I could never learn, and it is a doubt with me if they know themselves.

¹¹ Gatschet, *op. cit.*, pp. 186-189.

¹² From Schoolcraft's "Information Respecting the Indian tribes of the United States," vol. v, pp. 264-266.

Traveling Indians, having no relations in the town, often sleep in the public square as they are passing on their journey. This is one of their ancient rites of hospitality. And poor old men and women, suffering for want of clothes, are entitled to sleep in the hothouses of the town they live in, if they please.

The square is the place for all public meetings and the performance of all their principal warlike and religious ceremonies.

* * * * * *

Each square, as necessary appendages, has a hothouse at the northwest corner of it and a May-pole, with a large circular beaten yard around it, at the southwest corner, which is called the "chunkey yard." These two places are chiefly appropriated to dancing. The yard is used in warm and the hothouse in cold weather.

The hothouse is a perfect pyramid of about 25 feet high on a circular base of the same diameter. The walls of it are of clay, about 6 feet high, and from thence drawn regularly to a point at the top and covered round with tufts of bark. Inside of the hothouse is one broad circular seat made of canes and attached to the walls all around. The fire is kindled in the center, and the house, having no ventilator, soon becomes intolerably hot; yet the savages, amidst all the smoke and dust raised from the earthen floor by their violent manner of dancing, bear it for hours together without the least apparent inconvenience.

That mound B most likely supported a hothouse or winter council house is also borne out by Bartram's description of some of the Creek towns seen by him shortly before 1789. Referring to earth works of the ancients which shortly before 1789 were still being used by the then existing Creeks, he states:

B, a circular eminence at one end of the [chunkey] yard, commonly 9 or 10 feet higher than the ground round about. Upon this mound stands the great Rotunda, Hot House, or Winter Council House of the present Creeks. It was probably designed and used by the ancients who constructed it for the same purpose.¹³

He also shows, on the same page, that the chunkey yard had a "chunk" pole erected in the center of the yard and two "slave posts," one at each of two corners of the chunkey yard. His diagram of this rotunda or hothouse is reproduced in Figure 128, with the following explanation:

B, the rotunda; *A*, the door opening toward the square; the three circular lines show the two rows of seats, sofas, or cabins, the punctures show the poles or columns which support the building; *C*, the great central pillar or column, surrounded by the spiral fire, which gives light to the house.¹⁴

HOUSE CIRCLE NO. 3

Lack of funds prevented excavation of as many of the 87 house circles as was desirable. Circles Nos. 3, 20, 23, 42, 18, 79, and 84 were therefore selected. These represented every section of the town, and probably many types of occupants, and thus were likely to yield widely different information.

¹³ Bartram's Creek and Cherokee Indians, in *Transactions of the American Ethnological Society*, vol. III, part I, p. 52.

¹⁴ Bartram, *ibid.*, p. 54.

House circle No. 3, shown in Plate 99, adjoined mound A on the south, and also was at the southwestern corner of the town square. The large size of this circle, its prominent position, and the relics found therein, all indicate it was occupied by some important personage.

There was an earthen platform on the eastern side, overlooking the town square. This platform is shown on the map, Plate 95. Judging from other southern Indian towns seen by the early whites, this building probably had in front of it a shed or piazza extending over

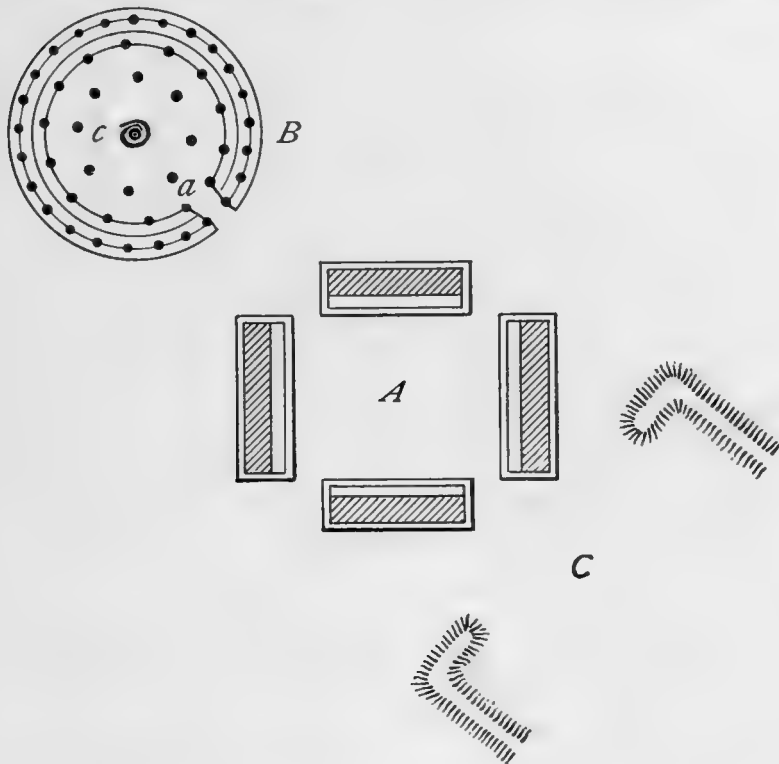


FIG. 128.—Arrangement of chunky yard (C), public square (A), and rotunda (B). (From Bartram's "Creek and Cherokee Indians")

a portion of the platform. Under this shed important personages and possibly others viewed the happenings in the town square.

If this square had an arrangement similar to that of some of the early Creek towns, as shown in Figure 126, the chunky yard was in front of this building No. 3, in the nook at the southwestern corner of the square and the portions of the square adjacent thereto.

Plate 103, *b*, shows a photograph of the uncovered floor in the central portion of house circle No. 3, and a diagram of this circle is shown in Figure 129. There is evidence indicating the existence of

the line of wall posts shown in the diagrams of circles Nos. 3, 23, 42, 79, and 84, but time and the elements have destroyed all remains of them. Only in rare instances where the wood had become charred were any traces of wooden objects found on the Gordon site.

A diagram giving what is probably a correct vertical section of the original circle, and showing the relative depths of the various graves, altar, and other objects, is shown in Figure 130.

A study of the photograph (pl. 103, *b*) will show that black loam to a depth of over 16 inches had accumulated on the floor of this

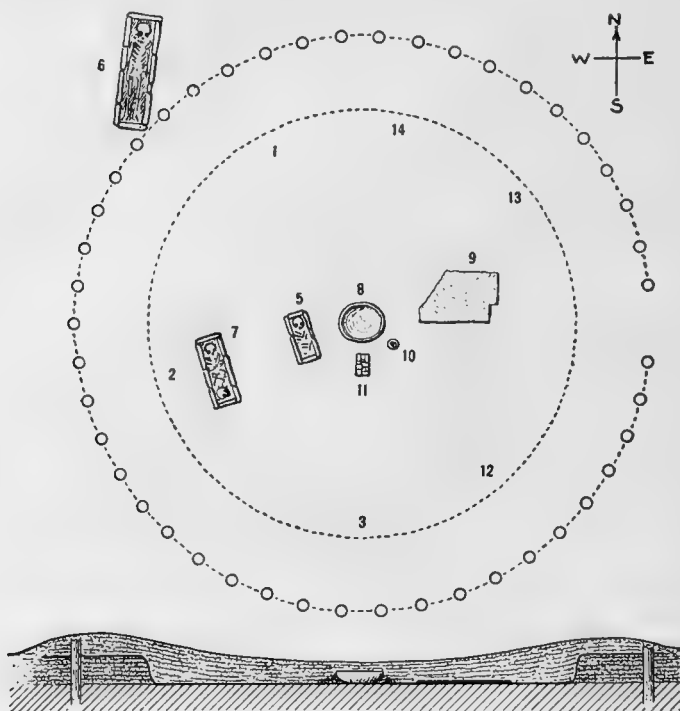


FIG. 129.—Diagram of circle No. 3

ancient building since it was deserted by its last occupants. The yardstick in the illustration is not resting upon the floor.

As this building was similar in construction to a large percentage of the houses in this town, the various steps in its erection will be traced. Excavations showed that strong poles for house-wall supports had been firmly set around a circle 38 feet in diameter. The surface soil within this circle had been removed down to the firm clay subsoil over the circular space, 30 feet in diameter, shown by the dotted line 1, 2, 3, 12, 13, and 14 of the diagram in Figure 129. The soil from this interior circular space was thrown against the wall of poles, forming a raised earthen ring, which held the poles more firmly,

added to the warmth of the interior, and aided in keeping out surface water. This ring has worn down with the lapse of time.

This left a raised platform or banquette, 4 feet wide, around the inside of the wall of the house. In this banquette upright posts had probably been fixed, supporting shelves or bunks of woven cane stems. These supporting posts were about 2 to 2½ feet in height, and the shelves were used as seats by day and as beds by night. The hairy hides of large animals, like deer and bear, were spread on these bunks for mattress and cover. The space underneath was used for storage. At a point where the banquette met the floor were found several objects which either had been stored under the edge of these beds or had become covered with *débris*.

The following account of the Omaha structures of the middle of the nineteenth century¹⁵ may throw some light on those of Gordon site.

The earth lodge [pl. 101, *b*] was a circular dwelling, having walls about 8 feet high and a dome-shaped roof, with a central opening for the escape of smoke

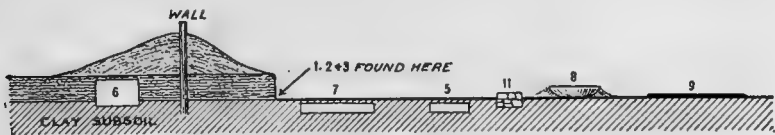


FIG. 130.—Diagram showing depth of the remains in circle No. 3

and the admission of light. The task of building an earth lodge was shared by men and women. The marking out of the site and the cutting of the heavy logs were done by the men. When the location was chosen, a stick was thrust in the spot where the fireplace was to be, one end of a rawhide rope was fastened to the stick and a circle 20 to 60 feet in diameter was drawn on the earth to mark where the wall was to be erected. The sod within the circle was removed, the ground excavated about a foot in depth, and the earth thrown around the circle like an embankment. Small crotched posts about 10 feet high were set 8 or 10 feet apart and 1½ feet within the circle, and on these were laid beams. Outside this frame split posts were set close together, having one end braced against the beams, thus forming a wall of timber. The opening generally, though not always, faced the east. Midway between the central fireplace and the wall were planted 4 to 8 large crotched posts about 10 feet in height, on which heavy beams rested, these serving to support the roof. This was made of long, slender, tapering trees stripped of their bark. These were tied at their large ends with cords (made from the inner bark of the linden) to the beams at the top of the stockade and at the middle to those resting in the crotches of the large posts forming the inner circle about the fireplace. The slender ends were cut so as to form the circular opening for the smoke, the edges being woven together with elm twine, so as to be firm. Outside the woodwork of the walls and roof, branches of willow were laid crosswise and bound tight to each slab and pole. Over the willows a heavy thatch of coarse grass was arranged so as to shed water. On the grass was placed a thick coating of sod. The sods were cut to lap and be laid like shingles.

¹⁵ Fletcher and La Flesche, "The Omaha Tribe," Twenty-seventh Ann. Rept. Bur. Amer. Ethn., pp. 97-99, Washington, 1911.

Finally they were tamped with earth and made impervious to rain. The entrance way, 6 to 10 feet long, projected from the door and was built in the same manner as the lodge and formed a part of it. A curtain of skin hung at the inner and one at the outer door of this entrance way. Much labor was expended on the floor of the lodge. The loose earth was carefully removed and the ground then tamped. It was next flooded with water, after which dried grass was spread over it and set on fire. Then the ground was tamped once again. This wetting and heating was repeated two or three times until the floor became hard and level and could be easily swept and kept clean. Brooms were made of brush or twigs tied together. Couches were arranged around the wall in the spaces between the posts of the framework. These were provided with skins and pillows and served as seats by day and as beds by night. * * *

Near each dwelling, generally to the left of the entrance, the cache * * * was built. This consisted of a hole in the ground about 8 feet deep, rounded at the bottom and sides, provided with a neck just large enough to admit the body of a person. The whole was lined with split posts, to which was tied an inner lining of bunches of dried grass. The opening was protected by grass, over which sod was placed. In these caches the winter supply of food was stored; the shelled corn was put into skin bags, long strings of corn on the cob were made by braiding the outer husks, while the jerked meat was packed in parfleche cases. Pelts, regalia, and extra clothing were generally kept in the cache; but these were laid in ornamented parfleche cases, never used but for this purpose.

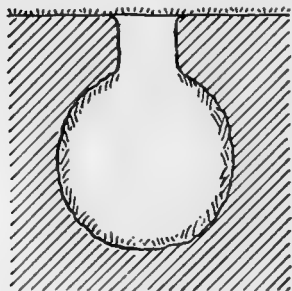


FIG. 131.—Common form of cache

When the people left the village for the summer buffalo hunt, all cumbersome household articles—as the mortars and pestles, extra hides, etc.—were placed in the caches and the openings carefully concealed. The cases containing gala clothing and regalia were taken along, as these garments were needed at the great tribal ceremonies which took place during that period.

Plate 101, *b* (a reproduction from pl. 22 of the Twenty-seventh Annual Report of the Bureau of American Ethnology, which accompanies the above account), shows how the Omahas remove the earth from the center and throw it into a ring around the walls, very much as was done on the Gordon site. The floors appear to have been prepared in a similar way.

Figure 131, which is also a reproduction from the same report, page 98, shows the common form of the Omaha cache. This cache recalls the one found under the floor and walls of temple circle No. 1 of the Gordon site.

In the erection of the Gordon building, when the surface soil of the interior had been removed down to the original hard clay subsoil, this subsoil was smoothed and hard packed and apparently hardened by fire to form a firm floor. Many of these clay floors showed traces of the action of fire.

FIRE BOWL

A diagram of the interior of circle No. 3 is shown in Figure 129. Resting on the floor, at the exact center of the circle, is the fire bowl No. 8. To the northeast of this fire bowl was a beautiful black,

glossy floor, at 9, the shape of which is shown in the diagram. The fire bowl, floor, and other near-by remains are shown in more detail in Figure 132.

Nos. 5 and 7 of Figure 129 are stone-slab graves of children, which were immediately beneath the floor. No. 11 is a rectangular structure of small stones. Nos. 1, 2, 3, 12, 13, and 14 are the line of the edge of the banquette. The fire bowl, No. 8, is shown in Plate 103, *b*, and in diagram in Figure 129. It is 29 by 27 inches outside measure; 25 by 23 inches inside. It rests upon the hard-packed clay floor. The rim is the same size as that of the fire bowl or altar in temple circle No. 1, but the bowl is deeper. The depth of the interior of

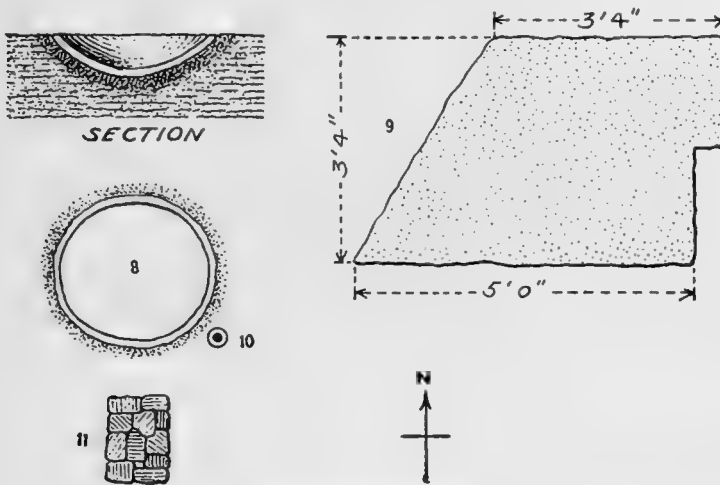


FIG 132.—Fire bowl, floor stones, pot

this bowl is $6\frac{1}{2}$ inches; that of house circle No. 1 is $4\frac{1}{4}$ inches. It was made of puddled clay, later hard-burned by long-continued use, in the same manner as the temple altar, as the earth showed action of heat to a depth of 6 inches below the bottom of the bowl. It was about half filled with fine white ashes. The remainder of the interior of the bowl contained ashes mixed with minute fragments of charcoal and dark earth. No bones or fragments of pottery were found in it. The rim of the bowl was 8 inches below the present surface of the soil.

RECTANGULAR STRUCTURE OF SMALL STONES

To the south of this fire bowl was a rectangular structure of small limestone rocks, 10 by 14 inches, height 8 inches. These stones ranged from the size of an egg to the size of the fist. They were roughly but neatly fitted together, slightly weather-worn, and were such as were plentiful in the near-by brook. This structure is shown in Figure 132, No. 11. There were no signs of ashes or action of fire around it. Its use is not known.

POLISHED BLACK FLOOR

To the northeast of the fire bowl (fig. 129) is No. 9, the black, glossy section of floor shown on a large scale in Figure 132, No. 9. The floor at this point had been smoothed and hardened to a slight extent with fire; then a one-half inch layer of a black glossy material was spread over it and carefully smoothed and polished. As the edges were clearly defined and no other traces of it were found in this building, it probably covered only the space shown.

SMALL POT WITH STONE COVER

A small earthen pot, shown in Plate 104, *a*, was found upright on the surface of the floor, 1 foot southeast of the fire bowl, near the foot of the yardstick in Plate 103, *b*. This pot is $3\frac{1}{2}$ inches in diameter across the rim and 3 inches deep. It had a neatly fitted cover made from two thin slabs of limestone, the edges of which had been rounded to fit the top of the pot. It was filled with a black earth which contained no solid objects. This black earth represented the original contents and filled the pot completely, supporting the still horizontal two-piece stone-slab top, which otherwise would have fallen in. The contents were submitted to chemists who report that the continued leaching during a long period had removed all recognizable traces of the original matter.

CHILD'S GRAVE

At 5 in Figure 129 was found the grave of a child about 3 months old. The stone-slab coffin was 12 by 26 inches and ran east and west. It was immediately below the surface, with the stone-slab top flush with the floor. There were no signs of ashes or fire about this grave. The sides had been forced in, probably by pressure arising from walking on the floor surrounding it. The body was extended on its back, arms at the sides, knees apparently originally bent upward, as shown in Figure 133. This child had no ornaments or artifacts of any kind with it.

COFFIN CONTAINING BODIES OF TWO CHILDREN

At 7 in Figure 129 was a stone-slab coffin which contained the skeletons of two little children. Plate 103, *a*, shows this grave after all the intrusive soil had been carefully removed, and before the bones had been disturbed. The top of the grave was flush with the hard-packed clay floor. The stone-slab coffin was 3 feet 9 inches long and 12 inches wide at the north end, 14 inches wide at the south end. Its depth was 10 inches. The grave ran N. 10° E.

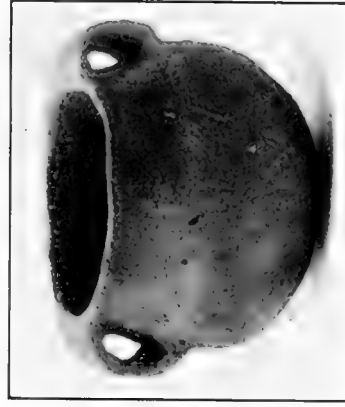
The position of the undisturbed bones clearly established the fact that these children had been buried after decay of the flesh. The



a, Small pot with stone cover



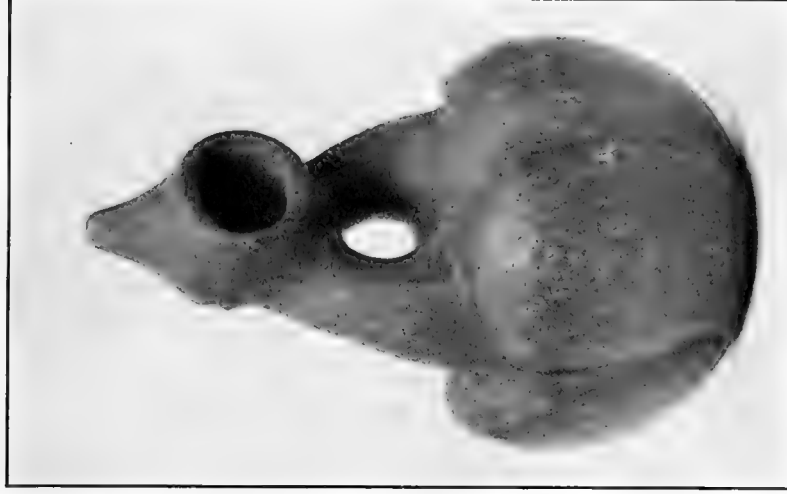
b



c

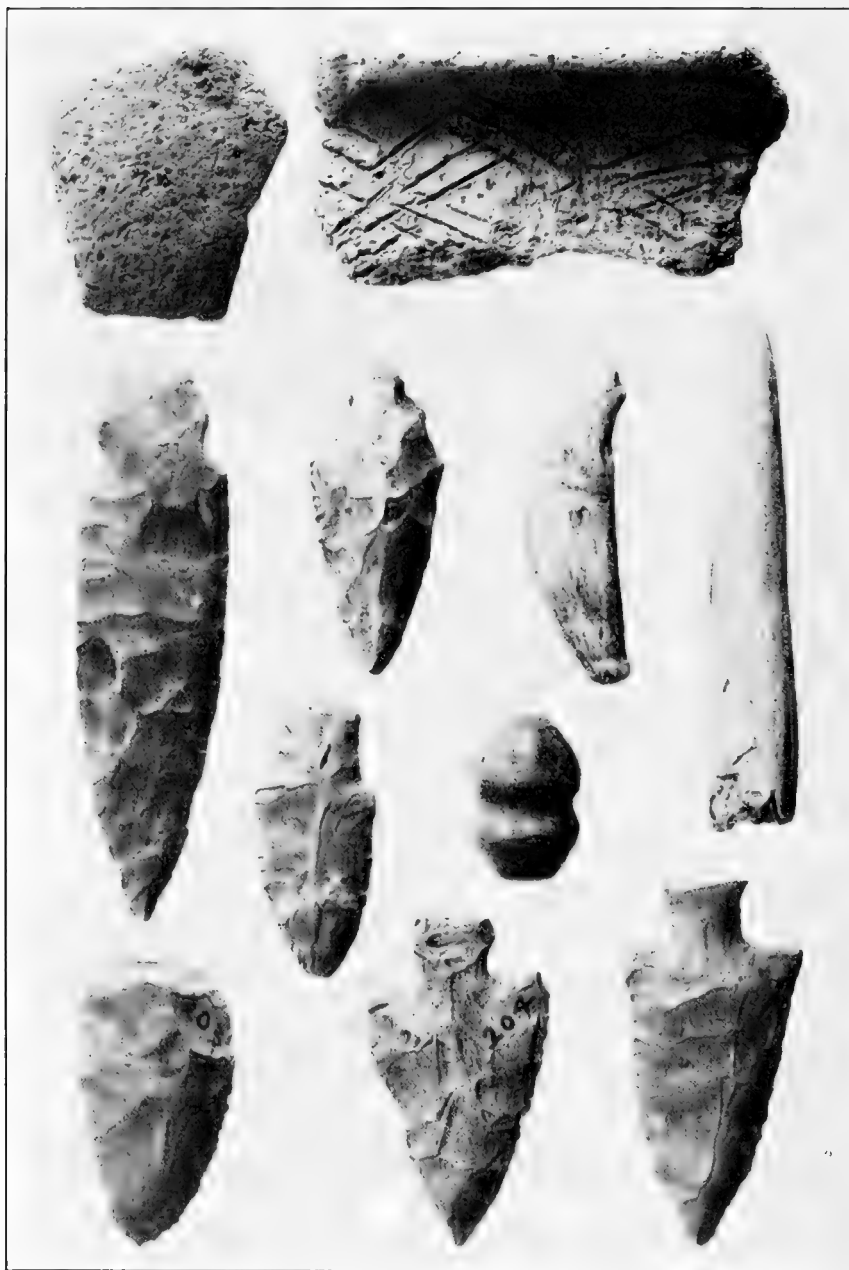
b, Stone dagger

c, Mortuary pot from grave at 1



d

d, Burial vase from grave at 1



ARROWHEADS, POTTERY, ETC.

skeleton in the southern end of the coffin is now in the United States National Museum, Division of Anthropology, No. 316086. This child was about 2 years of age. The one in the northern end (United States National Museum, Division of Anthropology, No. 316087) was that of a child about 7 years of age. No ornaments were found with these bodies. The stone slabs of the coffins were neatly fitted and some of the edges had been straightened by rude chipping with stone hammers. After the bones of these children had been placed on the bottom of the coffin it had been filled with surface soil. This soil contained fragments of domestic pottery and a few periwinkle shells, which probably had been scattered through the soil when it was placed in the coffin, as the surface soil contained few, if any, such shells. These periwinkles probably represented food for the journey of the children on their way to the darkening land of the West.

OTHER OBJECTS

At 1 in the diagram (fig. 129) the beautiful yellow flint dagger shown in Plate 104, *b*, was found. This dagger was on the original surface of the floor, against the edge of the banquette (fig. 130). It had evidently been hidden underneath the bed or accidentally covered with refuse swept back against the raised embankment.



FIG. 133.—Child in grave No. 5

Plate 102, *c*, is a photograph of a spherical object of pottery, three-fourths of an inch in diameter. Its use is unknown. It was found on the floor at 3, on the edge of the banquette (fig. 130), and was probably lost in the same manner as the dagger.

The little broken pottery head shown in Plate 102, *d*, was found at 2. It probably came from a human-figure vase or bowl, and was discovered on the clay floor, against the banquette.

Plate 102, *e*, represents a leaf-shaped implement, 6 inches in length, made of yellow chert. Like the others, it was found on the floor, on the east side of the wigwam, near the banquette.

A fragment of a grayish-black bowl with beaded rim was found among the fragments of pottery scattered through the black loam which filled the interior of circle No. 3.

A small portion of the interior of circle No. 3 was purposely left unexcavated, and a portion of the black, glossy floor was preserved in situ for the benefit of future students.

Plate 105 shows arrow heads, fragments of pottery, an implement made from the tip of an antler, a bear's tooth, and an ear plug or bead of black pottery. These were found scattered through the black loam which had accumulated in the interior of house circle

No. 3. Mingled with these objects were several hundred other fragments of domestic pottery and many animal bones. All the marrow bones had been broken in order to obtain the marrow. The bead or ear plug still retained a considerable portion of its original polished, glossy black surface, which had been worn away in some spots by use.

About one-half of the black, hourglass-shaped beads found on the Gordon and Fewkes sites, and several fragments of fine sunfish-shaped bowls and small, fine-beaded-rim bowls, were originally polished and colored.

These fine specimens of the potter's art resemble in polish and color a black ware made by the modern Catawbas, Cherokees, and the Santa Clara, New Mexico, Indians. Mr. James Mooney, of the Bureau of American Ethnology, described to the author the following method which he had seen the Catawbas use in making their finest black ware:

After the vessel or other object has received its final shape, and before it is baked, it is given a high polish by much rubbing with

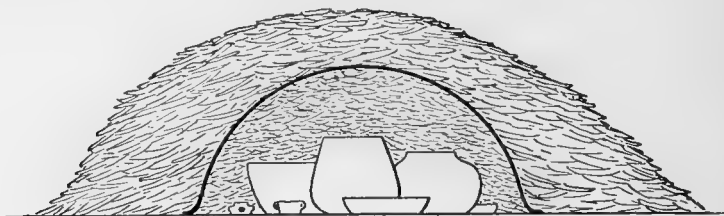


FIG. 134.—Method of burning Catawba ware

certain very hard and smooth stones or mussel shells with edges properly shaped by grinding. Over these unbaked, highly polished objects selected fragments of oak bark are piled, and the heap is then carefully and closely covered with a large inverted unbaked pottery vessel, as shown in Figure 134. Over this unbaked pot a large amount of oak bark is piled and then set on fire. This produces considerable heat and bakes the large inverted vessel. The penetrating heat finally sets fire to the oak bark fragments underneath it, which, being shut off from a full supply of air, burn after the manner of charcoal and produce a strong, penetrating black, which reaches to a great depth into the ware, thus producing the beautiful color. The glossiness arises from polishing.

The modern Cherokee produce a black which is much inferior to the above by burning ground corncobs in a small excavation in the soil, over which the vessel to be blackened is inverted. They also produce an inferior black by burning corncob meal within the vessel, which, in this case, is covered to prevent too rapid burning of the meal and the escape of the smoke.

GRAVE OF ADULT ON EXTERIOR OF WALL

A stone-slab grave of an adult male was found at 6, Figures 129 and 130. It was within the earth circle but a foot outside of the wall of the building. Plate 107, *a*, shows this grave before the removal of the top. The top was from 6 to 10 inches below the present surface of the raised earth circle at that point.

Plate 107, *b*, shows the grave after the removal of the top and of the earth which filled all the interior but before disturbing any of the bones. The body was buried extended full length, on its back, with arms at side. It rested on the surface of the original clay sub-soil. No ornaments or artifacts were found with the skeleton. The grave had been entered at the lower corner, near the feet, by some prowling animal, which had disturbed some of the leg and neck bones. The soil which filled this grave contained periwinkles and fragments of domestic pottery scattered through it. The grave ran N. 10° E. with the head at the north end. The tibiae of this male (National Museum, Division of Physical Anthropology, No. 316101) showed patches of moderate periostitis.

DUAL FUNCTIONS OF BUILDING

There were some indications that the building on circle No. 3 had a dual function. It appears to have been occupied partly as a dwelling and partly as a ceremonial room. No trace of domestic cooking appears in this circle. The ashes in the fire-bowl or altar contain no fragments of bone or pottery, such as would likely arise from domestic cookery. Did the chief, or subchief, or other important personage who occupied this building also occupy the building on house circle No. 2, which closely adjoins No. 3 on the west? Was the building on No. 3 used for some of the purposes of a dwelling and also for certain public rites which required an altar free from the profanement of domestic cooking? Were the cooking and some of the other domestic affairs carried on in the adjoining No. 2 building? Possibly the excavation of No. 2 may give an answer.

DOMESTIC VESSELS

Many pottery fragments were found in the black loam which filled the interior of circle No. 3. By a careful study of these fragments fairly accurate outlines of several were obtained.

In Figure 135 is shown a restored vessel, 10 inches in depth and 10 inches in diameter at the rim. Both its exterior and interior were Indian red, with small white shell mottling (pl. 106, *e*).



FIG. 135.—Restoration of vessel from interior of circle No. 3

Another restored vessel, 5 inches in depth and 4 inches in diameter at the rim, is shown in Figure 136. Both its exterior and interior were black (pl. 106, *i*).

Fragments of several vessels similar in shape to that in Figure 137 were found. Three of these were 10 inches in diameter at the rim and 10 inches in depth. The exteriors of all three were light red (pl. 106, *f*); their interiors were Indian red (pl. 106, *e*).

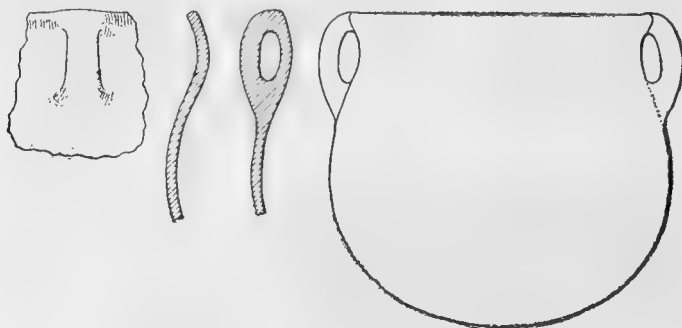


FIG. 136.—Restoration of vessel from interior of circle No. 3

Another vessel, similar in shape to that in Figure 137, was 7 inches in diameter at the rim and 7 inches in depth. Both its exterior and interior were yellowish gray (pl. 106, *g*).

A similar vessel was 12 inches in diameter at rim and 12 inches deep. Both its exterior and interior were dark gray (pl. 106, *a*).

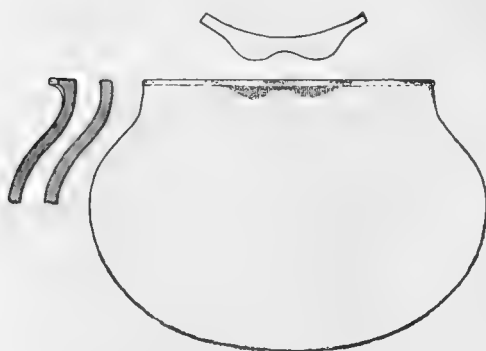
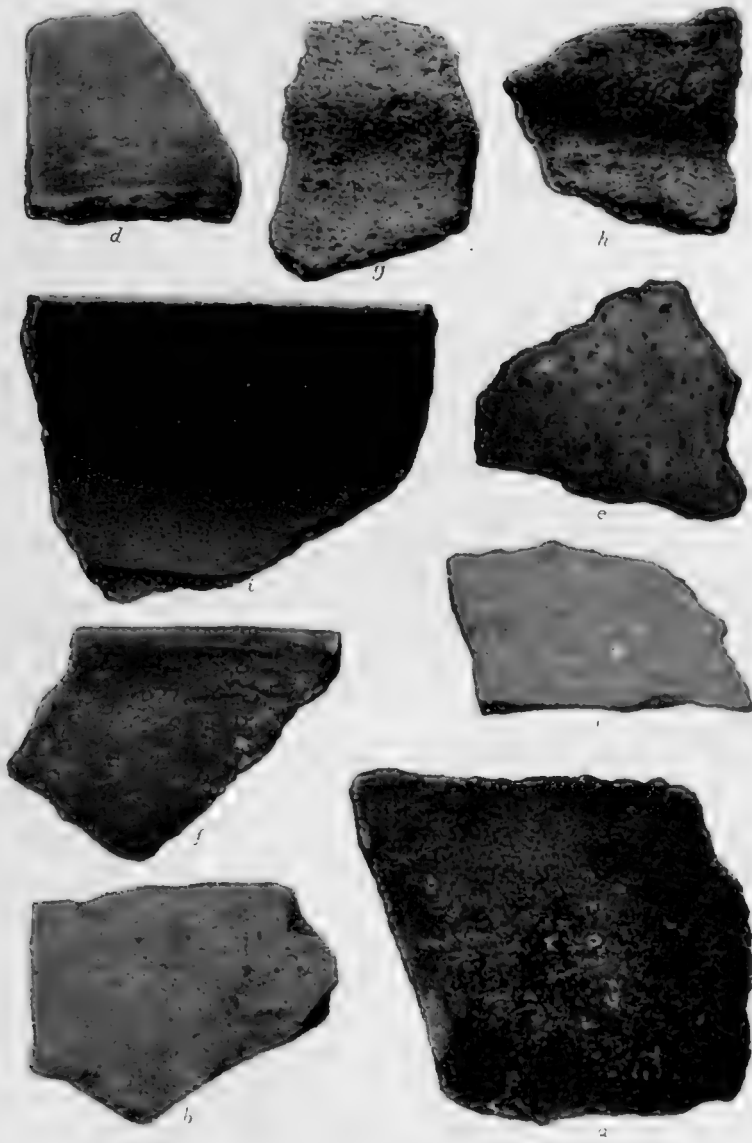


FIG. 137.—Restoration of vessel from interior of circle No. 3

Another vessel of fine, hard-burned, polished ware, similar to that shown in Plate 115, *b*, was about 5 inches in diameter at the rim. Exterior and interior were Indian red (pl. 106, *e*), with large splotches of black mottling.

Figure 138 shows the type of several bowls. All these were well burned and polished. They were

beyond question much prized by the ancient women who lived in this circle. One bowl was 8 inches in diameter at the rim, exterior and interior light gray (pl. 106, *b*). Two were 8 inches in diameter, exterior and interior Indian red (pl. 106, *e*). Another was 8 inches in diameter; and two others, similar in shape, were 10 inches in diameter. The paste of these three bowls was a dark gray. This had been coated, both on the exterior and interior, with an Indian red slip, and



POTSHERDS

A. J. N. B. C. C.

this slip had then been stained black, probably after the manner shown in Figure 134. Another was 12 inches in diameter, exterior and interior warm gray (pl. 106, *b*).

Figure 139' represents a vessel 8 inches in diameter at the rim. It is very hard burned, and contains an unusual amount of ground



FIG. 138.—Restoration of vessel from interior of circle No. 3

mussel shell material. Both exterior and interior are gray (pl. 106, *b*). This vessel would have stood nearly as much hard usage as the modern white man's pottery.

Figure 140 shows a restoration of a large oval-bottom vessel, to which has been given a probable diameter of only 28 inches, although the curve of the rim fragment indicates a diameter of about 32 inches.



FIG. 139.—Restoration of vessel from interior of circle No. 3

The wall of this vessel is only three-eighths of an inch and the rim one-half inch in thickness. It was probably 10 inches in depth. This vessel was made of fairly well burned clay, mingled with powdered mussel shell. Its exterior and interior have a thin, smooth coating of fine buff-colored clay, closely resembling Plate 106, *h*.

This vessel very closely resembles four large salt boiling vessels discovered at a salt spring near the village of Kimmswick, Jefferson County, Missouri, by Mr. David I. Bushnell, jr. One of these

vessels found by Mr. Bushnell is shown in Plate 108.¹⁶ In order to show the method of using such large, thin, easily broken, bowl-like vessels which had no handles, we quote from Mr. Bushnell's text, which accompanied this plate.¹⁷

In the main excavation more than 8,000 square feet of the original clay surface were exposed to view. On this surface were discovered four large earthen pans placed as they had been when last used, fragments of four similar pans, probably broken while in use, and 28 fire beds.

* * * The pan designated as II is $25\frac{1}{2}$ inches in diameter, 9 inches deep, and less than three-quarters of an inch thick. It was set in the clay, allowing the rim to extend less than 2 inches above the surface. To make this pan more substantial, large fragments of a similar vessel had been placed under the bottom and around it at a distance varying from a half to $1\frac{1}{2}$ inches, the intervening space having been filled with blue clay from the bed of the creek.

The next example, III, is the smallest of the four. * * * It was set in the clay, the rim extending about 2 inches above the surface. Fragments of pottery and a mass of blue clay surrounded it, similar to II. A photograph of this vessel before it was removed from the clay is reproduced, Plate B. The fragments of



FIG. 140.—Large vessel from interior of circle No. 3

pottery surrounding the pan are visible. The largest pan discovered (I) was not set in the yellow clay as were all the others but rested upon a mass of ashes and earth a few inches above the clay surface—probably it had never been used. The dimensions of this large vessel are: diameter 31 inches, depth 12 inches. This, although of the greatest capacity, is the thinnest of the four; in many places it is not more than half an inch in thickness. Pan IV was set into the clay with its rim extending 2 inches above the surface. Dimensions: diameter, 24 inches; depth, 9 inches. Although neither the blue clay nor sherds surrounded this vessel, it was found to be in an excellent state of preservation. A photograph of this plate as it was discovered is shown in Plate B. All were made of clay, to which a large quantity of pulverized shell was added. The surfaces, both inside and outside, are smooth and without decoration of any sort.

The fire beds, 28 in number, averaged more than 2 feet in diameter, and beneath many the heat had reddened the clay to a depth of from 6 to 9 inches, while, of course, the surfaces had become quite hard. In pan II a piece of stone about 8 inches in diameter was found which showed the effect of fire; similar stones were discovered either near or resting upon different fire beds, all showing unmistakable evidence of having been heated. And so we may conclude that the stones were heated and placed in the pan containing the water from the spring, the water would soon evaporate, leaving the salt in the bottom of the vessel.

The Gordon site people had no salt water. The closest source of salt water was the salt and sulphur spring in Sulphur Spring Bottom, on the present site of Nashville, about 8 miles to the north. Boiling

¹⁶ Primitive salt-making in the Mississippi Valley. *Man*, No. 13, 1907. Pl. B.

¹⁷ *Ibid.*, pp. 17-19.

was probably by the well-known method of heated stones placed in the vessel. Fragments of several similar large bowl-shaped vessels were found both on the Gordon site and in the Fewkes group.

Many other vessels were represented in these fragments found in circle No. 3, but the fragments were not of sufficient size to enable us to determine their size or appearance.

COLORS OF POTTERY

One hundred and thirty-two pottery fragments were found in the black loam which filled the interior of circle No. 3. Of these 20 were

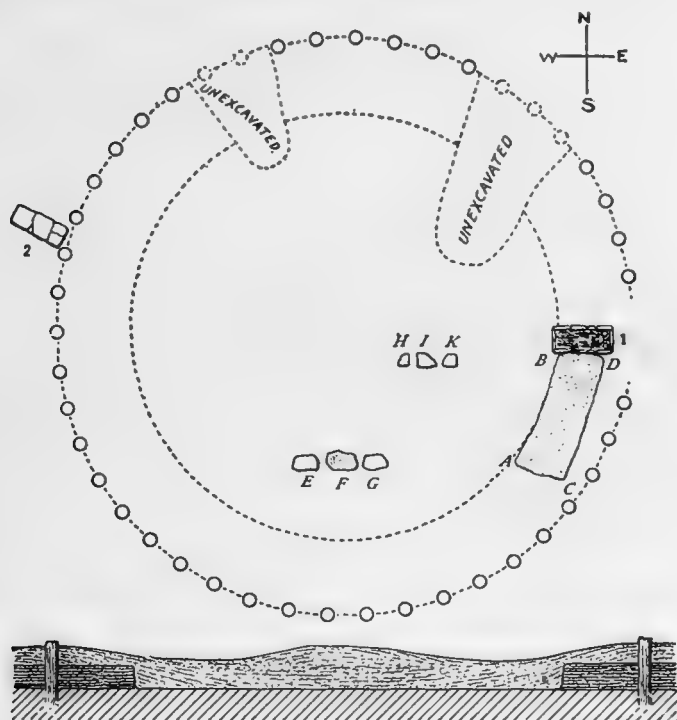


FIG. 141.—Diagram of house circle No. 23

various shades of gray (pl. 106, *a*, *b*), 4 were black (pl. 106, *i*), 5 were dark cream (pl. 106, *c*), 63 were yellowish gray (pl. 106, *g*), and 40 were various shades of red (pl. 106, *e*).

HOUSE CIRCLE NO. 23

The walls of house circle No. 23 (fig. 141) were circular and 30 feet in diameter. The earthen rim is now level with the exterior soil. The saucer-shaped central depression appears somewhat raised at the center, as will be seen by reference to the vertical section, due to soil being thrown in when the farm road which skirts this circle on the west was built.

This building had a raised bank of earth, or banquette, about 4 feet wide and 12 inches in height, around the walls on the interior, similar to that in some of the other circles. Only a portion of the banquette was utilized for beds or seats. Part of the eastern side was occupied by the domestic fire bed and a child's grave. The floor was the surface of the original clay subsoil.

Figure 142, *H, I, K*, was a line of three upright thin limestone slabs. These slabs had nothing under or around them to indicate their character or use, and showed no signs of action of fire. Beyond question they belonged to the everyday domestic life of the wigwam; but their use is unknown.

The sections marked "Unexcavated" and also a portion of the other interesting fire bed, *A, B, C, D*, Figure 141, were left unexcavated for the benefit of future explorers. A child's grave was found beyond the walls, on the west, at 2, and the stone-slab grave of a child was also found at 1, on the eastern side of the circle. This grave adjoined the domestic fire bed or hearth, *A, B, C, D*.

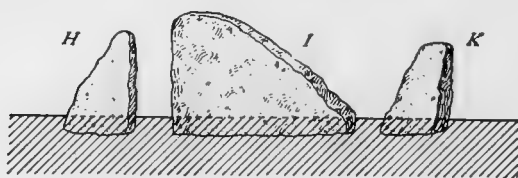


FIG. 142.—Stones *H, I, K*

Three interesting stones were found about 8 inches above the floor, at points *E, F, G* on the diagram (fig. 141). They are clearly shown in the photograph, Plate 109, *a*. One measured

12 by 10 inches, another 10 by 8 inches, and another 10 by 6 inches. They were from three-fourths of an inch to 2 inches in thickness. Nothing was buried under these stones, and no trace of fire or ashes or any signs of use found around them. The central one, *F*, had a slightly worn appearance, as if it had been a very small metate; but it was too small to have been of much service as such. This arrangement of three stones for some domestic purpose was customary in this town. Three larger stones, similarly arranged, were found in house circle No. 79. They are shown in Plate 114, *a*. One of these was a metate.

CHILD'S GRAVE

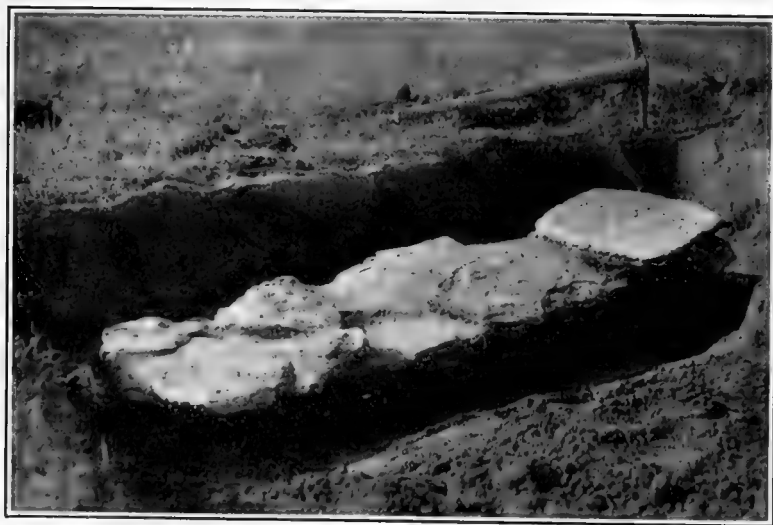
Plate 109, *a*, shows at *B* the fire bed, *A, B, C, D* (fig. 141). At *C* is shown the adjoining stone-slab top of the child's grave at 1 (fig. 141).

Plate 110, *a*, shows the grave before removal of the stone-slab top or cover. The top of this stone-slab cover was 15 inches below the present surface of the soil.

Plate 110, *b*, shows the grave after removal of the interior soil and before any of the bones or relics were disturbed. This stone-slab



a



b

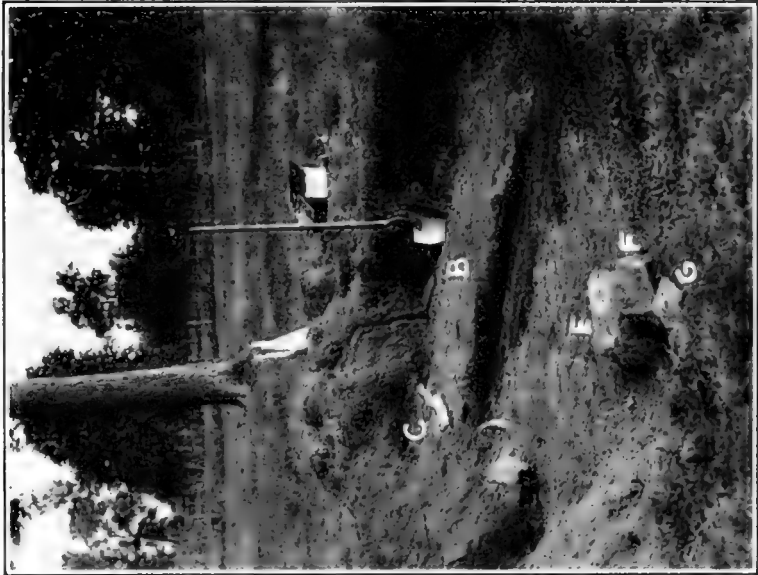
a, Grave after removal of top and intrusive soil

b, Grave before removal of top



SALT-BOILING VESSEL FOUND NEAR KIMMSWICK, MO.

Reproduction of Plate B, "Man," 1907



a

a, Fire bed and edge of top of adjoining child's grave



b

b, Grave of fetus at 2



a

a, Top of child's grave at 1



b

b, Child's grave at 1 after removal of intrusive soil



c

c, Grave after removal of body, showing pottery mosaic floor

grave was 40 inches in length, 12 inches wide at the eastern end, and 14 inches wide at the western end, and was 12 inches in depth, inside measurement. The grave ran W. 20° N. The pottery-fragment bottom of the coffin rested on the clay subsoil floor of the wigwam, with body lying on back, extended full length, head to the west. This child (U. S. National Museum, Division of Physical Anthropology, No. 316089) was about 5 years of age. It had been wrapped in a matting woven from the outer portion of cane stems. To the right of the head was the fine burial vase shown in Plate 104, *d*, made of black clay with minute flecks of finely powdered mussel shells. It had been polished with great care and then well burned. To the left of the head was the mortuary pot shown in Plate 104, *c*. Both the vase and the mortuary pot had been placed upright in the grave. The pot was entirely, and the vase partly, filled with earth, apparently similar to that which filled the remainder of the grave. While they doubtless had at one time contained food, all traces of it had been leached out by the rains of many centuries. The chemists of the Department of Agriculture were unable to find any traces of animal or vegetal matter in the contents of these vessels.

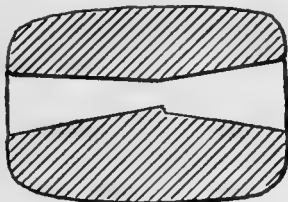


FIG. 143.—Method of drilling hole through one of the large beads

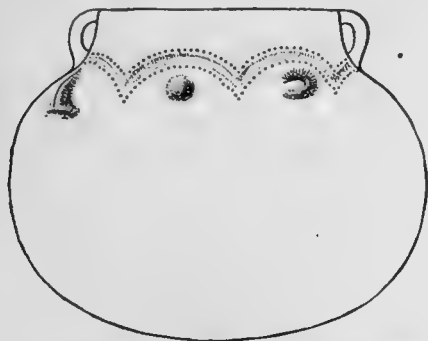


FIG. 144.—Restored pot from fragments in mosaic floor in grave at 1

thong around the neck. Figure 143 shows the method of drilling the holes through these long beads.

The small beads shown in Plate 111, *c*, were found around the neck of the child, as though worn as a necklace. One of these beads was within the cavity of the dropped-down lower jaw in such position that it could not have been on the necklace. It was probably attached to the hair or the ear, and had fallen into the place where it was found after decay of the flesh and the dropping down of the jaw.

Extremely faint traces of what was probably a cane mat could be seen near the breast and arms and underneath the body. The body, bedecked with its best ornaments and its best garments, had been wrapped in this cane matting and placed in the grave immediately adjoining the domestic hearth.

The grave was dug after the adjoining hearth had been in use. This is proved by the fact that several lumps of burned clay which came from the hearth were found scattered through the earth which entirely filled the interior of the grave. These evidently got into the coffin by accident when they were filling the interior.

After the body, wrapped in the cane matting, had been placed in the grave, the shell spoon and the mortuary vessels, probably containing food and drink, were placed at its head. Then the coffin

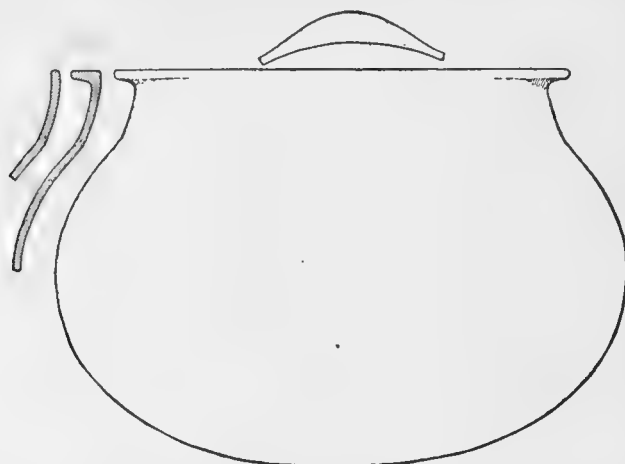


FIG. 145.—Restored pot from fragments in mosaic floor in grave at 1

was filled with earth. Periwinkles, for food on the long journey, were scattered in this earth as it was placed in the grave.

A grooved pendant, made from the tooth of a small bear, was with the body. It probably had been attached to some portion of the clothing, as it was not in such position as would indicate its being worn as a pendant to a necklace.

Plate 110, *c*, shows this small grave after the body had been removed. It will be seen that the bottom of the coffin had been covered with a mosaic of fragments of domestic pottery, which rested on the clay subsoil floor of the wigwam. These fragments appeared to belong to a few vessels which had been broken in course of domestic use. Among them were three small pieces of a fine image vessel representing a raccoon, similar to the raccoon vessel reproduced in Plate 134, *a*. The grave was situated in the banquette which ran around the wall.

A vessel, fragments of which were found amid the sherds composing the mosaic floor of this small grave, is shown in Figure 144. Both its exterior and interior were light red, showing mottled flecks of powdered mussel shell (pl. 106, *f*).

Figure 145 shows another large-sized vessel restored from fragments found in the mosaic floor of grave at 1 (fig. 141). It was about 17 inches in diameter across the top and 15 inches in depth. Exterior and interior of this vessel were a light red, with flecks of powdered shell, somewhat lighter red than Plate 106, *f*. This vessel probably held about 10 or 12 gallons. The material was strong and well burned.

FIRE BED

The fire bed, Figure 141, *A, B, C, D*, which adjoined this grave, was also situated in the banquette which extended around the rim.

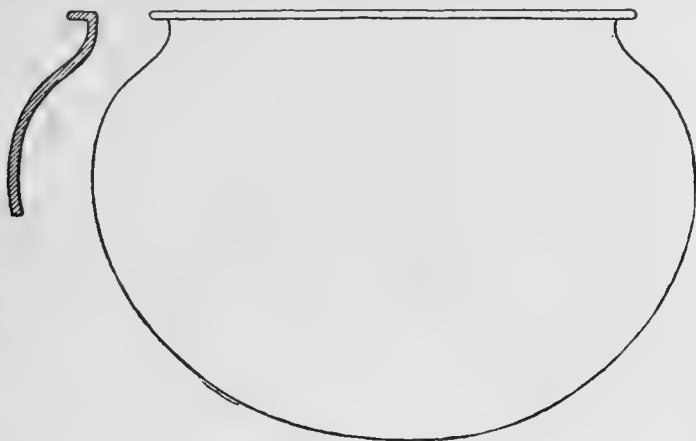


FIG. 146.—Restoration of domestic pottery

This fire bed was 9 feet from *A* to *B* and $3\frac{1}{2}$ feet from *B* to *D*. It was about 8 inches in depth and rested on the original clay subsoil, on a level with the floor. The sides and edges were fairly well defined and it showed signs of much use. It is shown in Plate 109, *a*. The construction of this fire bed was as follows: On the original clay subsoil, level with the floor, was first a layer of whitish-brown ashes, 2 inches thick; then a layer of brownish ashes mixed with burned clay, 1 inch thick; then a layer of mingled clay, ashes, and charcoal, $1\frac{1}{2}$ inches thick. This last layer yielded a fragment of domestic pottery (fig. 146) and some small animal bones. The charcoal contained some charred cane stems. Then came a 2-inch layer of very hard-burned red clay, which contained some impressions of cane leaves. On top of this was a layer of mingled black earth and ashes, from one-half to $1\frac{1}{2}$ inches in thickness. This top layer appeared to be the remains of the last fire upon this hearth.

The placing of this fire bed in the banquette, only a few inches from the wall, is so unusual and so dangerous that it might cause some to doubt its being a fire bed. A portion of it was left undisturbed, so that it might be studied by others, if necessary. Specimens of the various layers were also preserved. The near-by wall was doubtless heavily plastered with clay as a protection against the fire.

It will be noted that the stone slabs of the adjoining child's grave, though immediately against this fire bed, showed no signs of action of fire. Was the burial made and the house abandoned immediately thereafter? It is more probable the grave was kept well covered by the soil of the banquette in which it was situated. There was no other fire bed in the wigwam.

A circular pit, 18 inches in depth and 12 inches in diameter, was found adjoining the southwestern corner of the fire bed. It was



FIG. 147.—Large oval vessel, 30 by 24 inches

filled with loose ashes and charcoal and appeared to be a receptacle for ashes from the adjoining fire bed; or it may have been used in pit cooking

A small stone-slab double grave was found at 2, on the western edge of this house rim, but beyond the line of the wall. The unopened grave is shown in Plate 109, *b*. This grave was 24 inches in length and 10 inches in width, and it was 10 inches to the mosaic floor of domestic pottery fragments, inside measurement. It ran W. 30° N. This coffin had contained two bodies. One was a fetus (U. S. National Museum, Division of Physical Anthropology, No. 316090) and the other (U. S. National Museum, Division of Physical Anthropology, No. 316091), a child less than six months old. The grave had been so disturbed by marauding animals that it was impossible to tell the original arrangement of the bodies. The head of one was in the northwestern end and the other head in the opposite end. No ornaments or other artifacts were found in this grave.

OBJECTS SCATTERED THROUGH THE SOIL

Scattered through the black loam which filled the interior of circle No. 23 was found a large amount of fragments of domestic pottery. Some fragments were distinguished which belonged to the following vessels:

A large oval vessel, 30 by 24 inches, shown in Figure 147. It had no fabric impressions on its exterior.

Three pots resembling the one shown in Figure 145 and similar to each other in size and shape, 12 inches in diameter at rim.

Two beaded-rim bowls, identical in shape, color, and ornamentation, one 10 inches and the other 8 inches in diameter. They are similar to the restored bowl in Plate 118, *a*. They were both of dark gray ware, showing a large number of powdered shell flecks, similar to Plate 106, *a*.

One small, light red pot (pl. 106, *f*). It was 5 inches in diameter at rim and similar in shape to pot shown in Figure 135.

Two fragments of flint.

BOWLS WITH DECORATIONS SHOWING PROBABLE SIOUAN RELATIONSHIP

Small fragments of three bowls bearing the equal-arm cross and the encircling sun symbol were found scattered through the black loam in circles Nos. 1, 3, and 23. The design on the interior of two of these bowls is shown in Plate 112, *a*; that of the third in Plate 112, *b*.

Two of these bowls had similar designs. On the interior they were ornamented with equal-arm crosses with encircling sun symbol on the bottom and with V-shape decorations on the side. Plate 112, *a*, shows the design on the interior of both of these bowls. The fragment of one of these bowls was found in circle No. 1; the fragment of the other in circle No. 23. At first glance these fragments may appear too small to form a basis for the restoration of this elaborate design. As a matter of fact, the restoration has a much larger foundation; it is in reality based on several similarly decorated bowls found on various sites in Tennessee, Arkansas, and southeastern Missouri, whose culture closely resembles that of the Gordon site. If space permitted illustrations of these similar bowls, the reader would see that the restorations have reasonable foundation.

In Plate 112, *b*, is shown a restoration of the third vessel with decoration somewhat similar to that in Plate 112, *a*, except that the four world-quarter and sun symbols replace the V-shaped decorations on the rim. These fragments were from circle No. 3.

The exterior of one of the bowls reproduced in Plate 112, *a*, was a brownish Indian red somewhat browner than Plate 106, *e*. The decorations were white on a black ground.

The other bowl represented by the same illustration was a whitish cream color, both on its exterior and interior. The decorations were cream on a black ground.

The vessel shown in Plate 112, *b*, was black on its exterior and cream on its interior. The decorations were black on a cream background.

The decorations on all three of these bowls were confined to the interior. The material and polish of these three fine vessels represented the highest development of the potter's art in the Middle South. They are hard and firm and have a fine polish.

These equal-arm cross or four-world-quarter symbols with the inclosing sun circles are connected with the most sacred fundamental religious concepts of the people who once inhabited this town. They are shown on the hair of a figure representing Kicking Bear, a Sioux warrior, in one of the exhibition cases of the United States National Museum, and the modern Sioux use them at the present day.

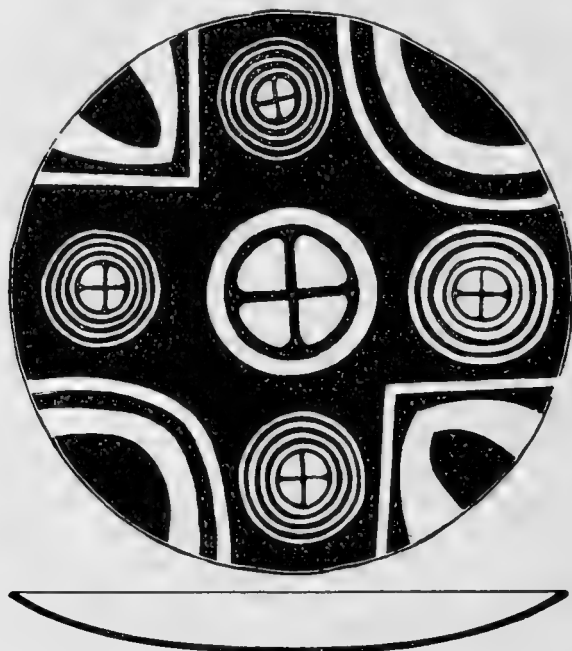


FIG. 148.—Castalian Springs bowl

The significance of the V-shaped decorations on these bowls is unknown. It is certain they had a meaning and are not mere creations of the artist's fancy. The author unearthed a fine bowl with somewhat similar V-shaped decorations in the culturally related town at Castalian Springs, about 30 miles northeast of the Gordon town site. This Castalian Springs bowl is shown in Figure 148.

A fragment of a water-bottle-shaped vase with the four world-quarter and sun symbols was found in circle No. 23. Similar decorated water-bottle vases were found at Castalian Springs and elsewhere in middle Tennessee.

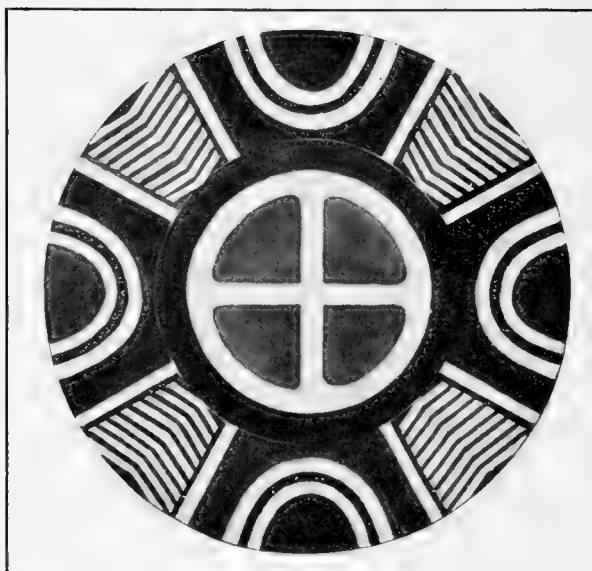
There is a bowl with somewhat similar V-shaped decorations illustrated in Thruston's "Antiquities of Tennessee," Figure 41. It was



a, Mussel shell spoon

b, Two large beads from grave at 1

c, Small beads

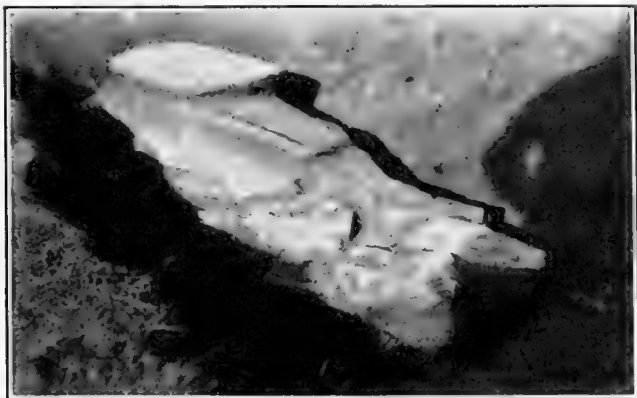


a

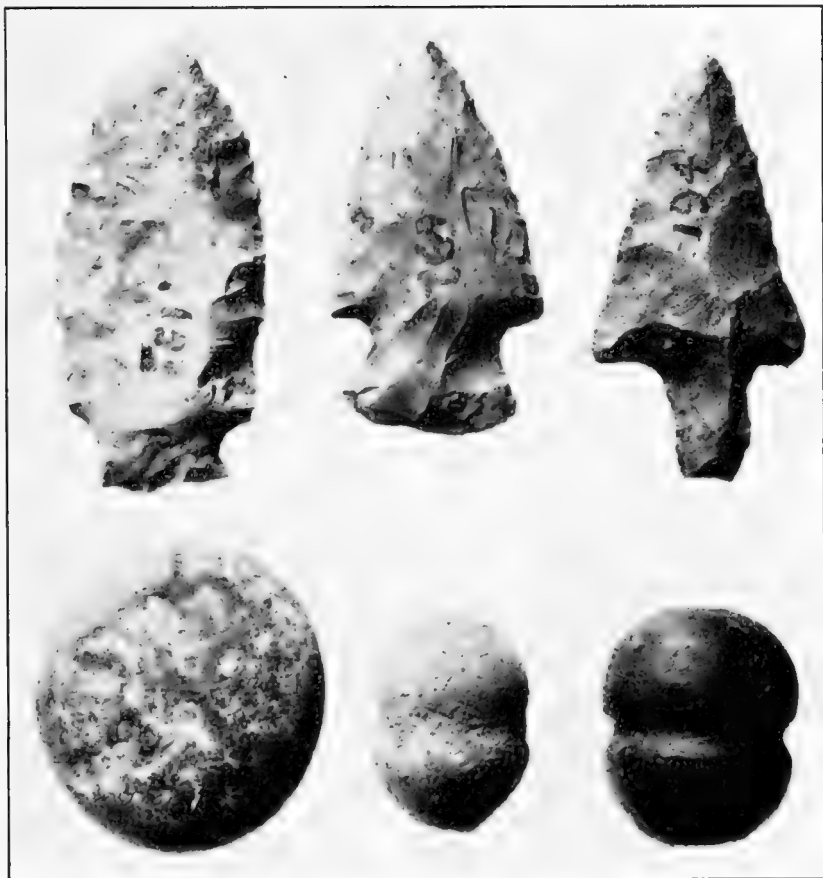


b

a, Restoration of equal-arm world quarter center and V-rim bowl decoration
b, Restoration of vessel with equal-arm cross on bottom and also on rim



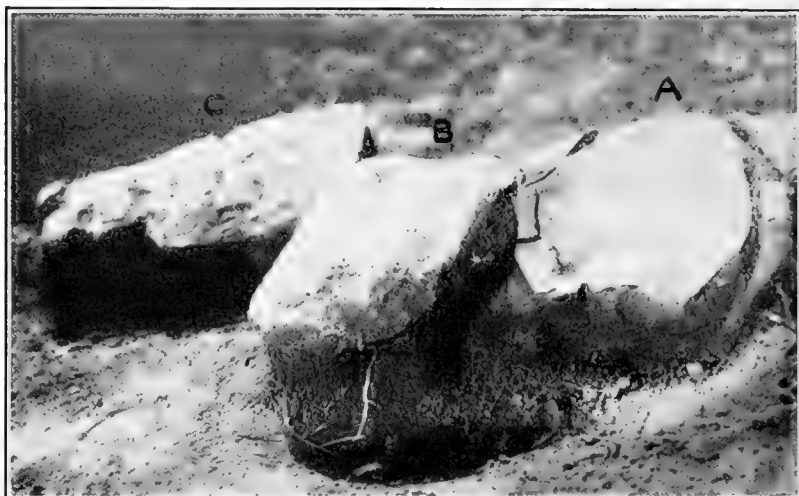
a



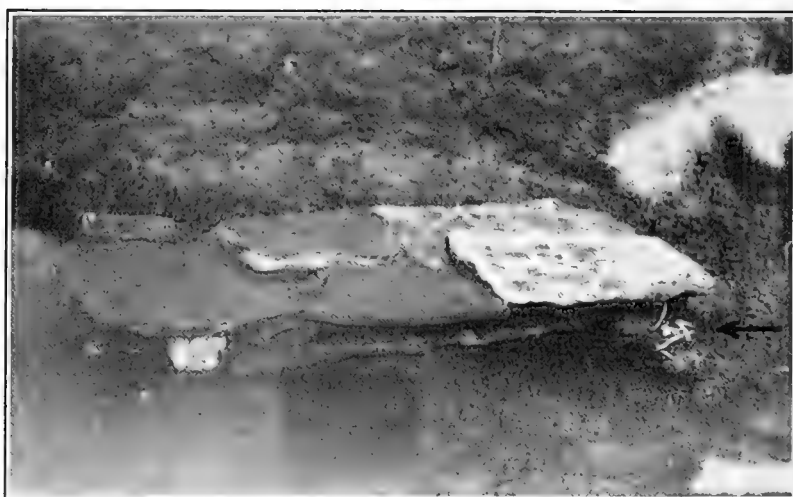
b

a, Grave P before removal of top

b, Objects in circle No. 23



a



b

a, Metate and two stones from circle No. 79

b, Child's grave at E, circle No. 79

found in the Noel Indian cemetery about 4 miles north of the Gordon site.

Figure 149 shows a restoration of a fine red undecorated bowl from circle No. 3. Both its exterior and interior are similar to Plate 106, *f*. It is hard-burned, but not as highly polished as the decorated bowls to which we have just referred.

OTHER OBJECTS

Some of the other artifacts found in circle 23 are shown in Plate 113, *b*. Among these are a rude discoidal, $1\frac{1}{2}$ inches in diameter, three arrowheads, an hourglass-shaped bead of black pottery, and a grooved whetstone of fine-grained sandstone.

HOUSE CIRCLE NO. 79

A family of the plain common people lived in house circle No. 79, in the northeastern section of the town. A diagram of this typical

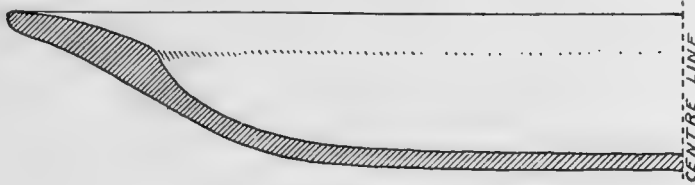


FIG. 149.—Undecorated bowl from circle No. 3

house of the ordinary man of the ancient Gordon town is shown in Figure 150.

The low earthen rim of this house circle denotes walls not so thick as some of the more important buildings. There was no elaborate fire bowl in the center. The fire had been built on the floor of the wigwam. There was no evidence denoting especial importance anywhere in the building.

Not far from the open fire in the center were the charred remains of an ancient wooden metate, an ancient grinding stone, and some other stones for domestic purposes. In the floor of the wigwam, to the west of the central fire bed, was the stone slab covering of the grave of three children.

THE METATE

About 18 inches south of the edge of the central fire bed were found the metate (*A*) and the other two stones (*B* and *C*) shown in Plate 114, *a*. The metate is 14 by 11 inches and about 3 inches in thickness. It sloped at an angle of about 25 degrees. It is now in the National Museum. The other two stones were 8 by 10 inches and 16 by 10 inches, respectively. These last two were rough unworked stones, and were probably for some unknown domestic use. Similar arrangements of three stones were probably in many of the other dwellings. (See smaller ones resembling these, in circle No. 23, shown

in pl. 109, a.) These stones were probably placed near the fire for the convenience of the women, who could thus grind and easily look after the fire and what might be cooking thereon.

SMALL WOOD USED AS FUEL

In considering these domestic fires, it must be steadily borne in mind that they were comparatively small. The Indian was frugal in regard to his fires as well as in many other things. The charred wood of domestic fires unearthed by us in many places in central Tennessee indicates that small limbs, ranging from 1 to 3 inches in

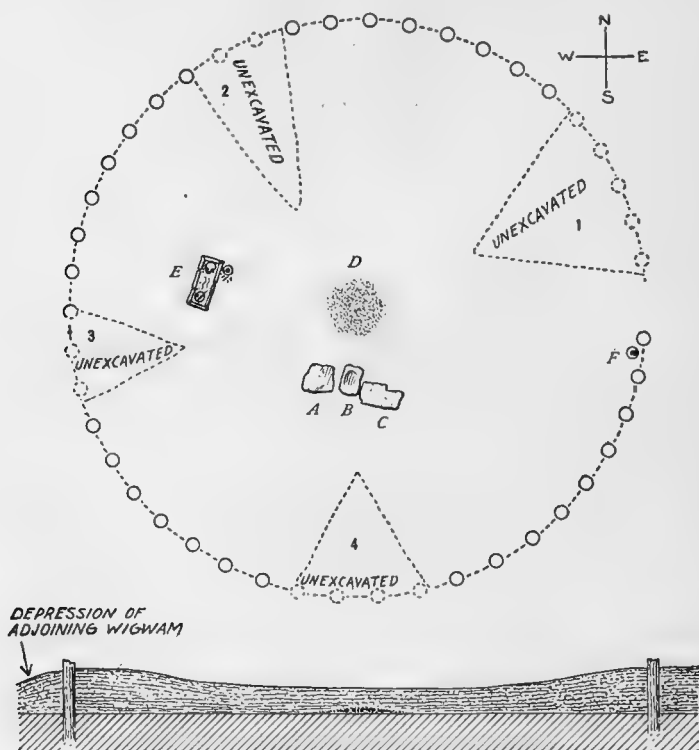


FIG. 150.—Diagram of house circle No. 79

diameter, constituted nearly the entire fuel supply. These sizes were such as could often be picked up in the surrounding forest. The enormous labor of cutting with their rude stone implements prevented the use of wood of large diameter for fuel.

rites Connected With The Metate

Explorations showed these three stones for domestic use in circle No. 79 had been placed in position with due and proper rites. First a small fire had been kindled on the spot where they were later to stand. Then a layer of clay, 1 inch in thickness, had been spread

over this ceremonial fire. Upon this layer of clay these stones were placed with a single mussel shell (*unio*) under each. This *unio* shell doubtless had a mystical connection with food and life.

CHILDREN'S GRAVE

At *E*, Figure 150, 8 feet west of the center of the building, was found the top cover of a stone-slab coffin, protruding slightly above the level of the clay subsoil floor. This proved to be the grave of two children.

The coffin was 32 inches in length, $9\frac{1}{2}$ inches in width at the south end, and $6\frac{1}{2}$ inches at the north end, inside measurement. It ran N. 10° E. It had been covered with a single stone slab, 33 inches in length and 24 inches in width, on top of which, completely covering the coffin, other stones were placed. *Several fragments of pottery had been used to level these added stone slabs. This grave, shown in Plate 114, *b*, had a floor covered with a mosaic of pottery fragments. It contained the bones of two children, one between 2 and 3 years of age, the other a little less than 1 year old, buried after the decay of the flesh. The bones were intermingled, the skull of one at the northern end, the skull of the other at the southern end of the coffin. With the bones were found a little prayer bowl¹⁸ (pl. 115, *a*), probably filled with food at the time of burial. This bowl, decorated with four human heads, was found so placed that each head faced approximately one of the four quarters of the earth and sky.

This little grave sheds light on some of the most sacred beliefs of these ancient people. It shows they had certain concepts pertaining to the present and future life which continued down to the time of contact with the white missionaries and later. The ancient inhabitants of the Gordon site probably held the fundamental ideas of the sun as the giver of life and of the four world quarters and the powerful spirits which dwell in them. This is borne out by numbers of fragments of ware found on this site, which were decorated with the cross representing the four world quarters, and one or more inclosing concentric circles representing the sun or the horizon. Several of these are illustrated in this volume. The four-headed prayer bowl found in this grave is connected with this same religious concept.

Many later Indians held similar concepts at the time of the coming of the whites. For example, four is one of the sacred numbers of the Cherokees. The placement of many objects in ceremonial performances and the construction of many of their prayer formulas have reference to the four cardinal points—the four quarters of the world and sky.

¹⁸ Many similar bowls and vases, which I have designated as prayer bowls and prayer vases, have been found on related sites in middle Tennessee and Arkansas. Typical Tennessee examples of such four-headed prayer bowls and water-bottle-shaped mortuary vases are shown in Thruston's "Antiquities of Tennessee," pl. VIII, and also in Holmes' "Aboriginal Pottery of the Eastern United States," Twentieth Ann. Rept. Bur. Amer. Ethn., pl. XLIX. Plate XIV of the latter paper shows a similar four-headed prayer vase from a related site in Arkansas.

At many points in Tennessee, Georgia, Alabama, Missouri, and Arkansas, wherever the people probably kindred to those of the Gordon site in Tennessee have dwelt, objects of stone, copper, shell, and pottery, decorated with these sacred four world-quarter crosses and sun symbols, have been found.

A Cherokee doctor in some of the treatments of a patient makes a circle around him, halting at the east, south, north, and west in this exact order. At the east he prays to the red spirits who dwell on high in the east—the land of the dawn. At the south he prays to the white spirits who dwell on high in the gentle south. At the north he prays to the blue spirits who dwell on high in the cold and forbidding north. And then he turns to the west and prays to the

black spirits dwelling on high in the west, the mysterious, darkening land of the sunset and night.

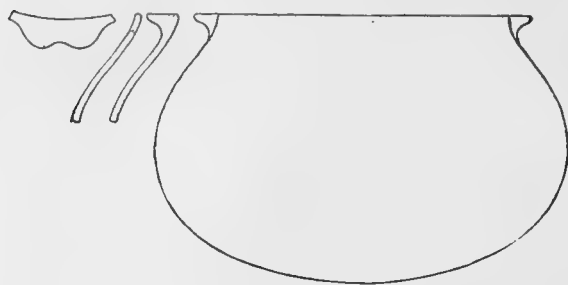


FIG. 151.—Restoration of pot from top of grave E

BURIAL AT CORNER OF GRAVE E

On the exterior of the stone-slab grave, *E*, Figure 150, but

adjoining the northeast corner of it, was a compact mass of small human bones, occupying a space of about 6 by 5 inches, which had been buried after decay of the flesh. Many of the bones had been placed within the brain cavity in order to make the heap as small as possible. This child was between 2 and 3 years of age.

This small heap was covered by the fragments of a little vessel $3\frac{3}{4}$ inches in height and $4\frac{1}{4}$ inches in diameter at its widest part (pl. 116). About one-fourth of it was missing. This vessel had probably been "killed" in order that its soul might be for the child's use in the land of spirits. The decorations on this pot represent a highly conventionalized human mouth, nostrils, eyes, ears, and other body openings.

POTTERY

In the layer of pottery fragments between the stone slabs forming the top of the grave, Figure 150, *E*, were found portions of a fine, large, red domestic vessel with conventionalized human features shown in Plate 117, *a*. It is 7 inches in diameter at the rim, 11 inches in diameter at its widest point, and $8\frac{1}{2}$ inches in height.

The incised decoration on this pot is not very common. It appears on the rims of possibly three or four vessels found on this site. A few specimens with similar incised rim decorations have been found on other sites within a radius of 15 miles from Nashville. Thruston's



a



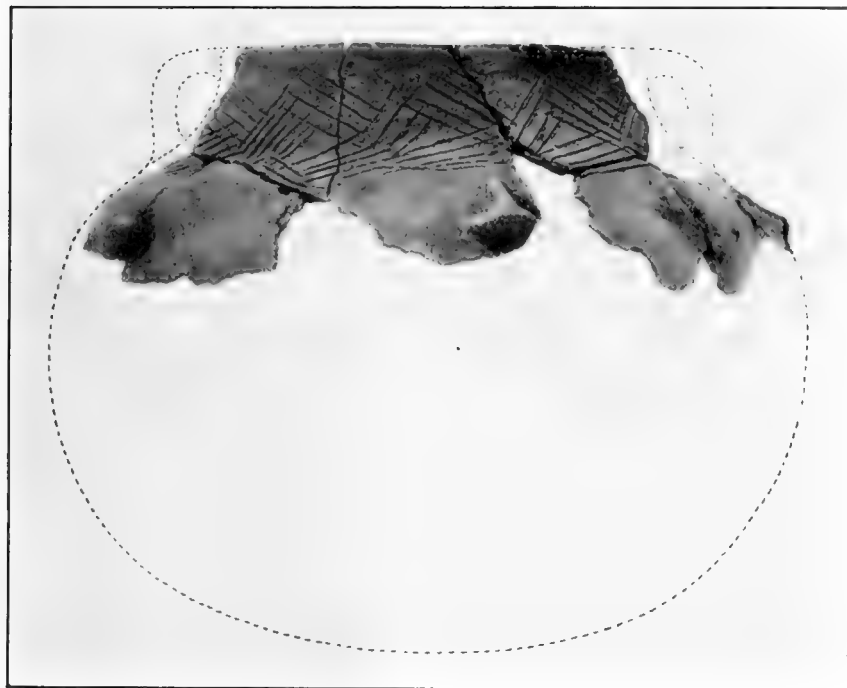
b

a, Prayer bowl from grave E

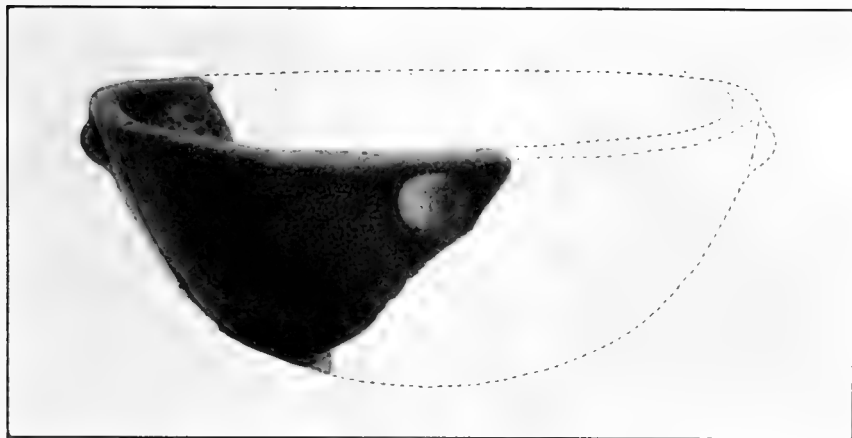
b, Vessel found upright on floor at edge of circle No. 79



RESTORED BROKEN POT FOUND INVERTED OVER BONES AT
NORTHEAST CORNER OF GRAVE E



a

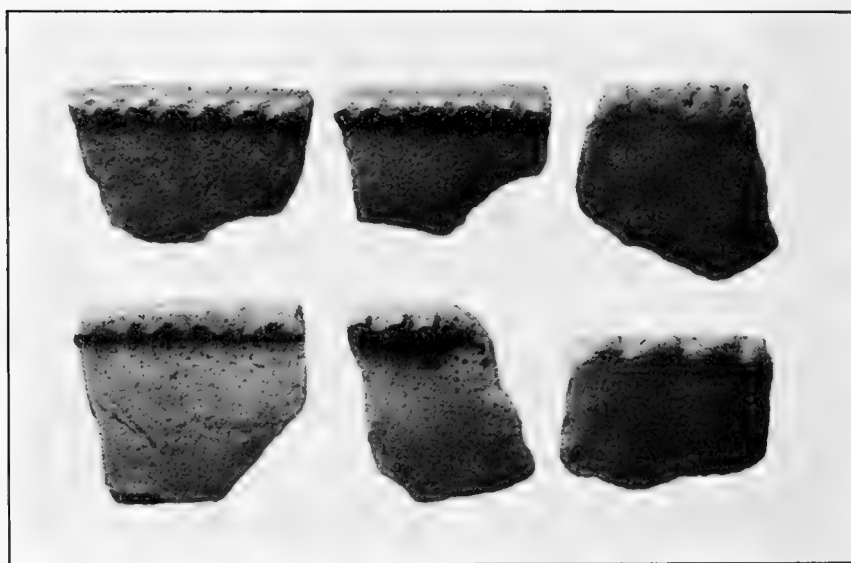


b

a, Fragment of red vessel with conventionalized human feature decoration
b, Restored bowl from upper layer on top of children's double grave, circle No 79



a



b

BEADED-RIM BOWLS

a, Restored bowl

b, Fragments of bowl

"Antiquities of Tennessee" shows, in Plate 6, a vessel with a conventionalized animal feature decoration and incised border on rim. There is some reason to believe that it probably came from the Gordon site. Thruston left no record.

In the probably kindred cultural region of Arkansas vessels have been found which show related conventionalized animal designs. Some of these are shown in the Twentieth Annual Report of the Bureau of American Ethnology, Plate 23.

There are a few vessels with somewhat similar conventionalized decorations in the United States National Museum. These came from Tennessee, and probably represent raccoons.

Several large fragments of each of the domestic vessels shown in Plate 117, *b*, and Figures 151, 152, 153, and the entire vessel, in fragments, shown in Plate 118, *b*, were found in the stratum of pottery covering grave E, in circle No. 79. Plate 117, *b*, is a restoration of a bowl of black and gray mottled pottery, 6 inches

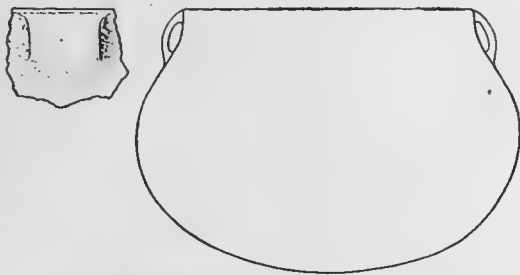


FIG. 152.—Restored handled pot from top of grave E

in diameter. It is ornamented with four knoblike protuberances. Figure 151 is a restoration of a pot, of light Indian red material, 10 inches in diameter across the top and 10 inches in depth.

Plate 118, *a*, shows a beautiful, slightly oval, beaded-rim bowl, $9\frac{1}{2}$ by $10\frac{1}{2}$ inches in diameter. Both its exterior and interior are dark cream color, somewhat darker than Plate 106, *c*. This vessel was made of clay mixed with finely powdered mussel shell, and both the interior and exterior then coated with a dark cream-colored clay slip. The vessel was later highly polished by rubbing with some polishing instrument. The bowl is well burned and hard.

Figure 152 represents a handled pot of dark cream-colored ware, somewhat darker than Plate 106, *c*. It was 10 inches in diameter across the top.

In this layer of pottery fragments were also found portions of a vessel similar in shape and character to Figure 152. It was 12 inches across the top, made of firm hard-burned bluish-gray ware, and was a very serviceable vessel.

Figure 153 shows a restoration of an unhandled pot of hard-burned ware. Its exterior and interior were a light red, resembling Plate 106, *f*. It was 8 inches across the top.

A small pottery vessel with incised decorations, shown in Plate 115, *b*, was found on the original clay subsoil surface of the floor of

the wigwam, at *F*, Figure 150, near the eastern wall. This vessel was upright and contained black earth mingled with some very small portions of a lumpy black substance. These were examined by Dr. W. E. Safford, economic botanist, Department of Agriculture. He reports these lumps "Evidently of organic origin, which may possibly have been finely ground maize made into a kind of mush," because this substance had the appearance of having run together as would a maize material of the character of mush. He thinks, if the original contents had been maize meal, and not mush, the remains would have been granular. This little vessel, about 4 inches in height, had been filled with this prepared maize material and placed upon the floor against the wall. The head shown on this vessel was missing. The vessel doubtless originally had such a head. A somewhat similar

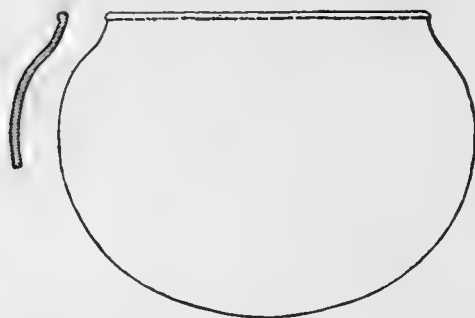


FIG. 153.—Restored unhandled pot from top of grave E

vessel, with a head, is shown in Figure 50, page 144, of Thruston's "Antiquities of Tennessee." This related vessel was found in the vicinity of the Gordon town. He does not give the exact site. Other slightly similar vessels from the related cultural region of southeastern Missouri and Arkansas are shown on Plates 20 and 25 of the Twentieth Annual Report of the Bureau of American Ethnology.

FIRE BED AT CENTER OF CIRCLE

At the center of circle No. 79 was found an ancient fire bed which contained only a very few ashes. It was 3 feet in diameter and showed little signs of use. Apparently this wigwam was not built until a short time before the town was abandoned or the wigwam was, for some reason, deserted after it had been used only a short time. But it was occupied at least long enough for the three children, already described, to be born to the dwellers therein.

EQUALITY IN ANCIENT LIFE

A comparison of the ruins of house circle No. 79 with those of house circle No. 3 will bring out clearly the near equality in the material belongings of these ancient people. No. 3 was one of the most important in the town. There is no very great difference between No. 3 and No. 79. No. 3 is 38 feet in diameter and No. 79 is only 30 feet. No. 3 had a fire bowl and No. 79 had only a plain fire bed. No. 3 had a portion of its floor black and glossy, while that of No. 79 was hard-packed clay, like the remainder of the floor of No. 3.

The labor of the six people who probably occupied No. 79 could have made it similar to No. 3 in every respect in two days' time. In other words, the extreme difference between the dwellings and the positions of the highest and lowest in this town of the younger days was the difference between two cottages belonging to laboring men, on the same street, in some modern industrial town, where the men work side by side and earn about the same wage. There was no great place on the hill, neither was there the hovel in the hollow below.

GRAVE P

In probing portions of this town site not covered with house circles an adult stone-slab grave was found near house circle No. 62, 20 feet west of the large hackberry tree shown at the most eastern point on the wall. This grave is shown in Plate 113, *a*. Its top was from 1 to 6 inches below the present surface of the soil.

The body was that of an adult male lying on its back.¹⁹ The grave ran W. 10° N., head at east end. An earthenware pot, shown in Plate 119, *a*, was lying on its side, to the right of the head. This pot was filled with earth containing traces of organic matter. Dr. W. E. Safford examined this material. He reported, "Evidently of organic origin, which may perhaps have been finely ground maize made into a kind of mush." Therefore it is probable that this vessel contained ground maize made into mush for food on the journey to the other world.

In the grave there was a small cylindrical bone bead near the throat of the body three-fourths of an inch long and three-eighths of an inch in diameter. The coffin was filled with earth taken from the surrounding surface soil, which at that time contained a few scattered fragments of domestic pottery. Here, as elsewhere in this town, a few periwinkles had been distributed through the earth as it was placed in the grave. No periwinkles were found in the surrounding surface soil.

THE OWL EFFIGY

The unique owl effigy pottery bead, shown in Plate 120, *a*, was found resting on the man's forehead in grave P. It had probably been attached to a bandeau or some other headdress or to the hair.

The pottery owl-effigy vase shown in Plate 119, *b*, was found by Mr. H. L. Gordon in cutting a road along the outer western edge of circle No. 23. It was presented by him to Doctor Fewkes. It is 4 inches in height. Two pottery owl images, very similar to the Gordon vase, were found in stone-slab graves in the Noel Indian

¹⁹ U. S. National Museum, Division of Physical Anthropology, No. 316099. See Dr. Hrdlička's report on this interesting skeleton, p. 612.

cemetery, $3\frac{1}{2}$ miles to the northwest.²⁰ Another owl image, probably made of dark cream pottery though said to have been carved out of a stone, was found near the ancient town on the Rutherford-Kiser farm, near Hendersonville, Sumner County, Tenn., about 20 miles to the north. This town had fortifications and house circles somewhat resembling the Gordon site.

The owl played a part in the sacred beliefs of many of our Indian tribes. The early accounts of the Natchez temple, wherein the perpetual fire was maintained, related that stuffed owls were seen in this temple, along with other sacred objects and images.

The ancient Sioux held the owl in great respect. They regarded him as the warrior of the night. The Otos, who belong to the Siouan family, have an owl (Makache) gens.²¹

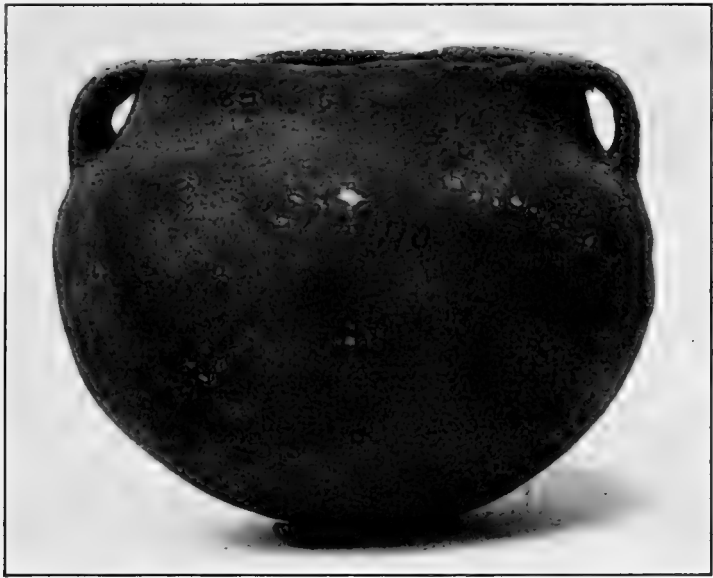
The standing of the owl varied among the different tribes. Some of them regarded him as a witch. Even the possession of owl feathers was considered proof of being a wizard, and was punishable with death.

HOUSE CIRCLE NO. 84

A diagram of house circle No. 84 is shown in Figure 154. This building stood not far from the southeastern corner of the old town square. The circle is 30 feet in diameter and the center of its saucer-like depression, at the time it was excavated, was a foot lower than the wall rim. In this circle was found a fire bowl, *B*, near the center. Northwest of the center was found a portion of the floor raised 6 inches higher than the remainder. On this raised portion were found the stones *C*, *D*, *E*, a broken muller, *F*, and the badly charred remains of a small mortar, *K*. This portion of the circle is shown in Plate 121, *a*. Adjoining this arrangement of stones was a kitchen refuse heap, *H*. Near the center of the wigwam on the south was the fire bowl shown in Plate 121, *a*. It was similar in appearance and material to the fire bowl in the town house or temple, but it was an inch or so larger. This fire bowl was 30 by 29 inches, and 8 inches deep, outside measurements. It rested on the hard-packed clay subsoil floor. The rim of the fire bowl was 6 inches under the present surface of the soil. The fire bowl was filled to the brim with compact pure white ashes, containing little, if any, charcoal. These ashes contained a very small number of periwinkle shells and two fragments of the femur of a small animal, which Dr. O. P. Hay, research associate of the Carnegie Institution of Washington, thinks was likely a red squirrel, though it might have been a weasel or a skunk; the fragments were too small to determine with certainty. No fragments

²⁰ One of these is shown in Thruston's "Antiquities of Tennessee," second edition, Plate III.

²¹ Handbook of American Indians, Bureau of American Ethnology, Bull. 30, pt. 2, p. 166.



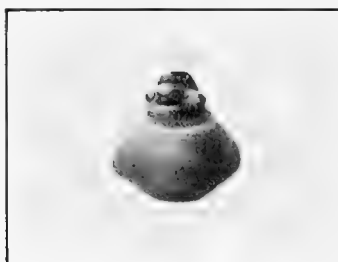
a



b

a, Pot

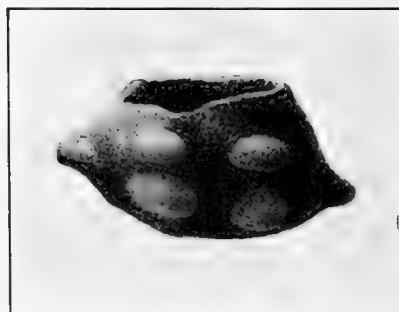
b, Owl effigy vase



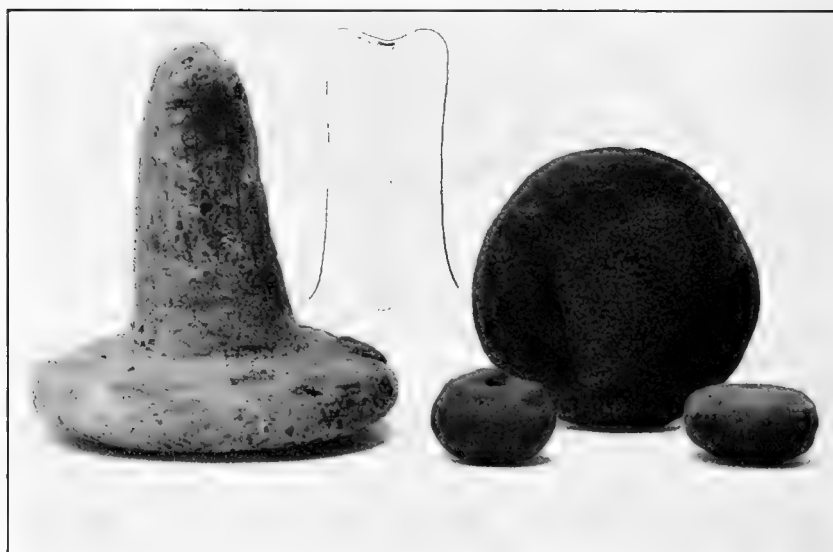
a



b



e



c

d

a, Owl bead from grave P
b, Circular stone pot cover found in circle No. 84
c, Pottery mushroom-shaped trowel

d, Beads and discoidal from circle No. 42
e, Toy sunfish bowl



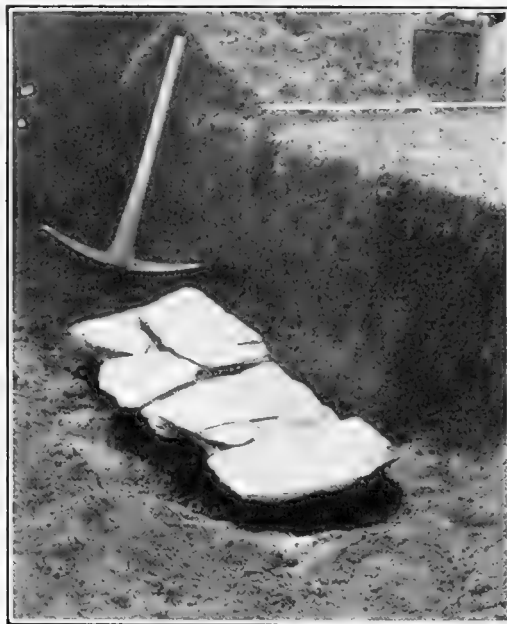
a



b

a, Interior of house circle No. 81

b, Body not in stone coffin



a



b

a, Child's grave in circle No. 42

b, Stone floor and surroundings in circle No. 42

of pottery and no other bones were found in the fire bowl. This fire bowl must have been in use for a long period, because the floor underneath it showed the effects of long-continued fire.

A DIFFERENT MODE OF BURIAL

At 1, Figure 154, in the southern part of house circle No. 84, was a burial different from any other found in this town. It was the body of an adult male, buried after decay of the flesh.²² This was the only adult found interred within a house circle, and the only adult not placed in a stone-slab coffin, on the Gordon site. The bones had been buried in a shallow grave beneath the clay floor, and originally

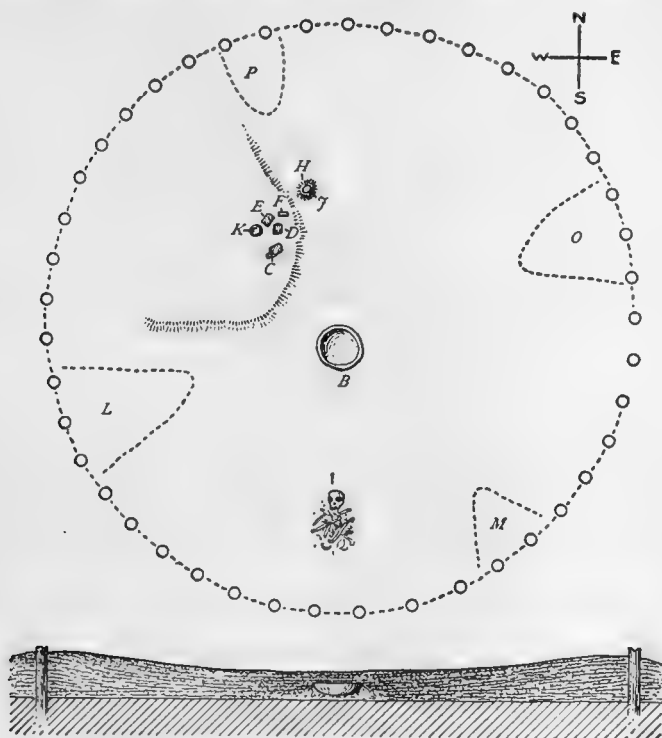


FIG. 154.—Diagram of house circle No. 84

had only 2 inches of the floor covering them. The bones had been placed in an elongated pile which ran approximately W. 10° N. Some of the large leg bones appeared to have been broken before burial. These can be seen in Plate 121, *b*. The ribs and lower jaw and some other bones were not present. The body had no ornaments or other artifacts. Three periwinkle shells were found among the bones. Very little dark earth, such as would result from decay of flesh or wrappings, was found in this grave. Some of the vertebræ had been placed approximately as in life.

²² Now in U. S. National Museum, Division of Physical Anthropology, No 316102.

Who was this man buried in such an unusual manner? Why had the leg bones been broken? Why were important bones missing?

Our southern Indians and many others believed that when a warrior was slain in battle his soul wandered in disquiet until some enemy was slain in reparation or until some captive was adopted in his place. A captive so adopted took the place of the slain warrior in the family and received the care and affection which was the due of the deceased. A captive, on reaching the village of his captors, might be put to death with the cruellest torture, or he might be adopted into a place of honor and affection in the tribe.

Was this man, whose bones we found, a captive from some other tribe, adopted in place of some dead warrior into the family occupying circle No. 84? Had his bones been buried just underneath the floor after the manner of his former tribe instead of that of his adoption? Is there any significance in the fact that no children were found buried under the floor of this dwelling wherein we discovered the bones of this adult male? His skeleton resembles those of the remainder of Gordon town.

PREPARATION OF FOOD

We came upon the remains of the food department at *C*, *D*, *E*, *F*, *G*, *H*, *K*, in Figure 154. *C* is a stone slab, 9 inches long and 4 inches in width by 2 inches in thickness. Stone *D* is 6 by 6 inches, by 6 inches thick; stone *E* is 6 by 8 inches, by 4 inches thick. *C* showed some very slight traces of having been used as a metate, but it is so small that such use must be regarded as doubtful. *K* is the charred remains of a small wooden mortar 9 inches in diameter and 3 inches in depth, inside measurement. This mortar was $5\frac{1}{2}$ inches in height. Underneath *C*, *D*, *E*, and *K* was a layer of black soil containing decayed mussel (*unio*) shells. This layer was $2\frac{1}{2}$ feet in diameter and about 3 inches in thickness. *H* is a pile of kitchen refuse. In this refuse was a circular stone-pot cover, $3\frac{1}{2}$ inches in diameter and one-fourth inch thick, shown in Plate 120, *b*.

The broken muller, *F*, was found near the slab, *E*. This muller can be seen in situ in Plate 121, *a*.

The women of circle 84 were the most slovenly housekeepers in the town. No such untidy layers of refuse were found in any of the other circles excavated.

The floor of the west and northwest sides of the wigwam was 6 inches higher than the remainder of the floor in the central part of the circle. This is shown in Plate 121, *a*.

The spaces *L*, *M*, *O*, *P*, Figure 154, were left unexcavated for the benefit of future explorers.

HOUSE CIRCLE NO. 42

House circle No. 42 is 33 feet in diameter. The center of its saucerlike depression is 18 inches below the rim of the circle. This rim does not rise above the surface of the surrounding soil. A diagram of this circle is shown in Figure 155.

Near the center of the circle was a fire bowl which was somewhat smaller than those found elsewhere in the town. Near the fire bowl and occupying the south central portion of the circle was an

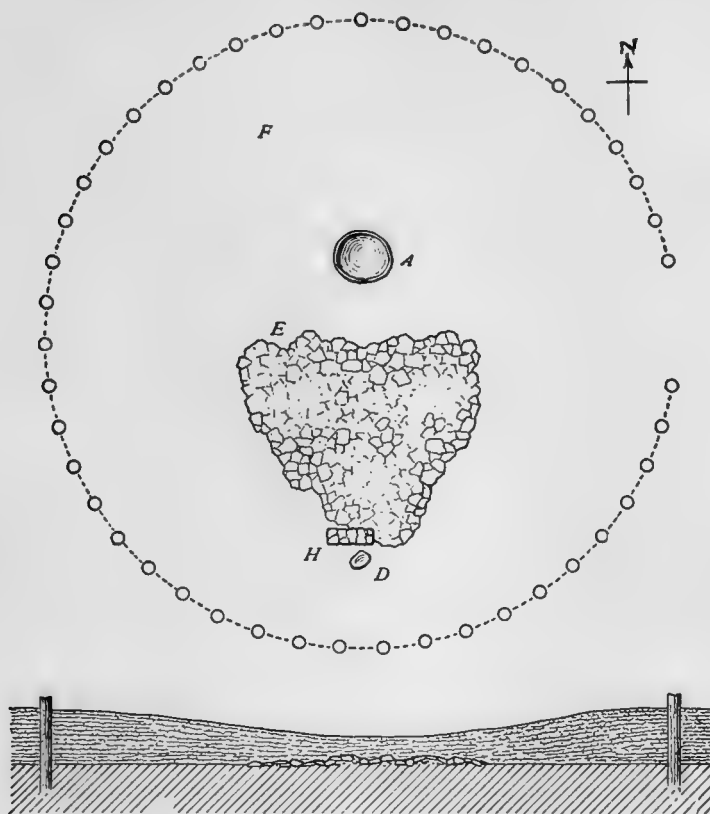


FIG. 155.—Diagram of house circle No. 42

uneven stone mosaic floor composed of irregular, rough stone slabs rudely fitted together. Adjoining this floor, on the south, was a child's grave, at the south side of which and only 2 inches above it was a small metate. By the side of the grave and near the metate was found a rude limestone muller.

STONE MOSAIC FLOOR

A photograph of a portion of this stone mosaic floor and the grave is shown in Plate 122, *a*. The floor was composed of irregular thin limestone slabs, probably picked up on the hillside half a mile to

the west. These slabs were from 6 by 10 inches to 10 by 10 inches and were about an inch thick. They were laid on the original clay subsoil and had been rudely fitted together. The surface of this floor was very wavy and uneven, as can be seen in the illustration.

This floor probably was originally laid level and became uneven because the soil under it had not been hard-packed or from some other cause. This rough, bumpy floor, which could have been taken up and relaid in two hours' time, tells in a graphic manner the untidiness of this ancient home. The floor was removed and a careful search was made in the clay subsoil supporting it. Nothing was found under it.

CHILD'S GRAVE AND METATE

At the southern edge of this floor, at *H* in Figure 155, and Plate 122, *a*, was the stone-slab grave of a child. The grave had been rifled by relic hunters, but luckily they had not disturbed its surroundings. The coffin was 32 inches in length and 10 inches in width. Its top was level with the surface of the stone floor. Adjoining the southern side of the coffin, and only 2 inches above it, was a small ancient metate in situ. A small corner of this metate can be seen at *D* in Figure 155 or at *D* in Plate 122, *b*. This metate was 10 by 12 inches and 2½ inches thick. On the floor by the side of the coffin and near the metate was a rude stone muller.

Some of the Siouan tribes, notably the Omahas and Otos, had a custom which was connected with a class of actions pertaining to "the lowest or oldest stratum of tribal rites." It is part of the old and sacred ceremony of introducing a child into its recognized place in the tribe.²³

The baby's first moccasins were made with a little hole in one of the toes, in order that it might perhaps prevail on the dread messenger of death to allow it to remain on earth.

When moccasins are made for a little baby, a small hole is cut in the sole of one. This is done in order that "if a messenger from the spirit world should come and say to the child, 'I have come for you,' the child could answer, 'I can not go on a journey—my moccasins are worn out!'" A similar custom obtains in the Oto tribe. A little hole is cut in the first pair of moccasins made for a child. When the relatives come to see the little one, they examine the moccasins, and, seeing the hole, they say: "Why he (or she) has worn out his moccasins; he has traveled over the earth!" This is an indirect prayer that the child may live long.²⁴

FIRE BOWL

At *A* in Figure 155, about 2 feet north of the center of the wigwam and 15 inches under the present surface of the soil, was found part of an old fire bowl. At some time in the past it had been broken and

²³ "It is directly related to the cosmic forces—the wind, the earth, and the fire."—La Flesche.

²⁴ Fletcher and La Flesche in 27th Ann. Rept. Bur. Amer. Ethn., p. 117.

a portion removed, probably by relic hunters. This fire bowl was smaller than any of the others found on the Gordon site. It was, as nearly as could be determined, 20 by 24 inches, and was filled to the brim with ashes. Some of these ashes can be seen near the shovel in Plate 122, *b*.

TROWEL

A mushroom-shaped trowel, made of hard-burned pottery, was found at *F*, Figure 155. This trowel is shown in Plate 120, *c*. It was not on the floor, but about 8 inches above the floor, in the loose rich black loam which filled the circle. Nothing else was with it. This trowel was probably used in smoothing domestic pottery. Its stem or handle has a small hole, one-eighth inch in diameter, which extends through its entire length, as shown by the dotted lines. When this trowel was fashioned a small cane apparently had been placed in the center of the still moist and soft stem, so that this cane would burn out in the fire and leave this cavity, which would aid in the more thorough burning of the thick stem.

OTHER ARTIFACTS

Two beads and a small discoidal were also found scattered through the black loam filling the circle. They are shown in Plate 120, *d*.

At *E*, Figure 155, 4 inches above the surface of the floor, in the loose black loam, was a broken celt made of diorite. After this celt had been broken the fragment found had been used as a hammer stone.

It has been puzzling to find in Gordon town heavy objects like the pottery trowel and the diorite celt in the black loam some distance above the floor and also to find pottery fragments scattered all through this loam, with more fragments at the top, just beneath the grass roots, than elsewhere. These objects must have been left lying on the surface of the original floor. They probably were gradually forced upward by the upward pushing freezing water as the black loam slowly accumulated. This freezing water often appears on the surface of the soil as minute upward-forced columns of ice.

HOUSE CIRCLE NO. 20

House circle No. 20 is 28 feet in diameter. It was not explored beyond opening the stone-slab grave of a child, which was discovered by means of a sounding rod. The coffin was 38 inches long and 11 inches wide, inside measure, and ran W. 25° N. It contained the body of a child 6 years of age, lying on its back, extended full length, head at the west end.²⁵ To the left of the head was an upright nest of two small bowls and a biconvex discoidal. The discoidal was

²⁵ U. S. National Museum, Division of Physical Anthropology, No. 316085.

on top of and formed a cover for the smaller bowl, which was within the larger one. Neither of the bowls appeared to have ever had any solid contents. The discoidal fitted into the rim of the bowl so closely that no solid substance had been able to filter into it. The larger bowl was not well baked and crumbled into very small fragments, which have been placed back in proper position. Its rim is oval, 5 by 4 inches. It originally had four knobs at each end. These two bowls and the discoidal, which were found nested, are shown separately in Plate 123.

CEMETERIES

In addition to the children's graves found in the wigwam floors there were two well-defined cemeteries. These are shown on the map (pl. 95). One is in the southeastern portion of the town in the dotted area marked "Scattered graves." Here apparently the graves were widely scattered. They have nearly all been destroyed by cultivation. The other cemetery is on a small knoll at the northeastern corner of the town. Here the graves have not been disturbed by the plow, but they have been subjected to some erosion. The graves here are fairly close together, ranging from 1 to 3 feet in distance each from the other. These graves lie at all angles, with no definite rule as to direction. There had probably been 25 graves in this cemetery, mostly of adults. These were all typical middle Tennessee stone-slab graves, with the bodies lying on back, extended full length, with arms at side. Judging from similar graves in that portion of the Gordon site not subjected to so much erosion, the stone-slab tops of the graves in all the cemeteries in this town had been placed from 16 to 25 inches beneath the surface of the soil at the time of burial. Erosion in this northeastern cemetery has brought the tops of the graves to the level of the soil and in some instances 1 or 2 inches above it. They had all been disturbed by relic hunters.

In a corner of a rifled child's grave, about 38 inches long, inside measure, was found the unusual toy pottery sunfish bowl shown in Plate 120, *e*. It is $1\frac{3}{4}$ inches in length. A similar toy sunfish bowl was found by Mr. John Early Jackson in an adjoining child's grave. This bowl was $2\frac{1}{2}$ inches in length and was in the child's right hand. The sunfish-shaped bowl is one of the types of mortuary vessels found in some of the stone-slab graves of middle Tennessee. It appears not to have been much used for domestic purposes. Out of thousands of fragments of domestic pottery found by the author in middle Tennessee only three or four were fragments of sunfish vessels. The sunfish, possibly from its very remote resemblance to the sun's disk, especially when first removed from the water, may have been connected with the sacred sun rites of these people.

So far as could be discovered by inquiry and search and by testing with a sounding rod there were no burials outside the walls of the town.

The stone-slab graves were made as follows: A pit was dug to a depth of from 30 to 50 inches. This pit was the length and width of the stone coffin desired. Then the unworked limestone slabs were set up around the sides. In a few cases the bottom was lined with fragments of domestic pottery. The body was placed in the coffin, on its back, and usually extended full length, with arms at sides. The mortuary vessels were placed in the coffin, usually near the head, and the coffin filled with earth containing scattering periwinkles and the stone-slab top placed on the coffin. After this top was in place the earth was thrown back in the grave in the same manner as a modern white would fill up a shallow grave after the coffin had been placed therein.

In many of the stone-slab burials in other portions of middle Tennessee no earth was placed in the coffin. The author has often found them with joints so carefully constructed and protected that little or no earth succeeded in filtering into the interior. When the top of the coffin was removed the skeleton and mortuary vessels would be as free from earth as on the day they had been placed therein.

WALLS AROUND GORDON TOWN

It was hoped that some faint trace would be found of the decayed ancient wooden palisades which doubtless had been embedded in and surmounted the earthen embankment which now encircles this town.

Search was begun in the eastern wall, at the point where house circle No. 58 touches the wall. Four test trenches were dug, extending along the lines of the wall embankment, 5, 7, 4, and 5 feet, respectively, in length. They extended down into the original clay subsoil. The 7-foot trench was dug in the first bastion in the embankment, to the north of circle No. 58. This bastion trench was 7 feet north to south and 15 feet east to west. In none of these trenches was there the slightest trace of the ancient palisades or their postholes. Here, as everywhere in this old town, all traces of the original wooden construction had disappeared, save in the cases where the wood had been charred.

The test trenches revealed that this site probably had been inhabited for a considerable time before the wall was raised. The soil contained very few fragments of pottery—about one-fourth the proportion found in the soil filling the interior of the house circles. The soil around the spots where the test trenches were dug in the wall could not be expected to have as rapid an accumulation of pottery fragments as in the house interiors or in the central portions of the

town. It is also probable that some of this earth in the wall came from the surface on the outer side of the wall, where there would be extremely little, if any, accumulation of pottery fragments. Therefore these few pottery fragments in the wall embankment render it likely that the walls were raised at a time not far from the central period of the town's occupation.

In some of the walled towns in middle Tennessee, notably the one on the Lindsey farm, 4 miles east of Lebanon, Tenn., there was a ditch along the inside of the entire length of the wall. No trace of such a ditch was found at the Gordon town.

ORIGINAL APPEARANCE OF WALL

Judging from the description of the many fortified towns found by De Soto and other early visitors in the southern United States, it is probable that this town was surrounded by a wall of wooden palisades firmly placed in the earthen embankment. This line of palisades was made of small tree trunks, from 3 to 10 inches in diameter, set probably about 4 or 5 feet into the earthen embankment and rising about 10 or 12 feet above it. These tree trunks were placed touching each other. The crack between them was protected by another tree trunk placed behind them, on the inside of the wall. As will be seen from the map (pl. 95), earthen bastions were placed about every 55 feet. Upon these bastions semicircular towers, projecting beyond the line of the wall, were raised. These towers were about 17 feet in height. They were fitted with a platform, on the inside, about 8 feet above the ground, which, with the surface of the earthen bastion, gave them two platforms for supporting warriors. From three to five warriors could stand on each platform. The towers projected beyond the line of the wall, and thus more effectively commanded its outer surface.

These palisades were braced by long, slender poles extending along the inside of the wall, bound to the palisade trunks by wild vines or split cane stems. The outer surface of the wall and of the towers was plastered with a thick coating of mortar made of clay with intermingled tough wild grasses as a binder, and smoothed with a trowel, rendering the scaling more difficult. The walls and the towers were pierced with a large number of small loopholes, to allow the defenders to discharge arrows at the enemy.

WALLS OF OTHER SOUTHERN INDIAN TOWNS

The Gordon walls had an entrance like that of old Mauvila, destroyed by De Soto, but otherwise were somewhat similar to the Natchez forts, a description of which follows:

I can not describe these forts better than by comparing them to a barrel hoop from which the withes have been cut. This circle is relaxed and the outside

end is at some distance from the inside end, so that to enter the circle without passing over it, it is necessary to make a turn. It is by this opening that one enters the fort, the inner side of which is protected by a half tower and the outer side in the same way. Besides, if they are in great fear, this opening or passage is filled with brambles and thorns. * * * The walls of these forts are composed of great posts, which are made of the trunks of trees a span in circumference, buried 5 to 6 feet in the earth and extending 10 above it, and pointed above. The lines of contact of these posts, however round, are covered inside with other posts a foot in diameter. This wall is provided outside with half towers 40 paces apart. They make them doubtless to prevent scaling. The lower ends of the posts are supported inside by a banquette 3 feet wide by as much in height, which is itself supported by stakes bound together with green branches in order to retain the earth which is in this banquette.²⁶

MAUVILA

Mauvila was a strongly fortified Indian town destroyed by De Soto. It was probably located near the junction of the Tombigbee and Black Warrior Rivers in Greene County, Ala. Its walls closely resembled those of Gordon site. They are described as follows in Irving's "Conquest of Florida," vol. II, pp. 37-38:

It stood in a fine plain, surrounded by a high wall formed of huge trunks of trees driven into the ground, side by side, and wedged together. These were crossed within and without by others smaller and longer, bound to them by bands made of split reeds and wild vines. The whole was thickly plastered over with a kind of mortar, made of clay and straw trampled together, which filled up every chink and crevice of the woodwork, appearing as if smoothed with a trowel. Throughout its whole circuit the wall was pierced with loopholes, from whence arrows might be discharged at an enemy, and at every fifty paces it was surrounded by a tower, capable of holding seven or eight fighting men. Numbers of the trees which had been driven into the ground had taken root and flourished, springing up out of the rampart and spreading their branches above it, so as to form a circle of foliage round the village. There were but two gates to the place, one to the east, the other to the west. In the center was a large square, around which the principal dwellings were erected.

Referring to these walls, in describing the Spanish attack, Irving says, on pages 45-46:

They then charged the enemy with a fury, inspired by their recent maltreatment, and drove them back into the village, whither they would have followed them, but were assailed with such showers of stones and arrows from the wall and loopholes that they were compelled to draw back.

A further description of the part these walls played in the attack is given on page 49:

In an instant a band of two hundred resolute cavaliers dashed forward to the assault. The savages received them valiantly and beat them back several times. The gate, however, was soon broken open and the Spaniards rushed in, pell-mell, amidst a shower of darts and stones. The opening being too narrow to admit them all readily, some attacked the wall with their axes; quickly demolished the frail facing of clay and straw, and laying bare the cross-beams and their fastenings, assisted each other to scramble up by them, and thus got into the village to the aid of their comrades.

²⁶ Du Pratz, quoted by Swanton in Bull. 43, Bureau of American Ethnology, p. 133.

The walls of this fortified Gordon town, like those of the other Indian fortified places in middle Tennessee, did not take in the springs or other sources of water supply. The Gordon fortifications could easily have extended to inclose the fine spring at the northern end of the town, only about 50 feet from the line of wall. This brings out the well-known fact that Indian warfare and fortifications did not contemplate long sieges.

CHARACTER OF GORDON TOWN BUILDINGS

In 1700 Father Gravier visited the wigwams of the Tunica on the lower Yazoo River. As these Tunica wigwams somewhat resembled those on the Gordon site, his description will give some idea of the probable appearance of the Gordon wigwams.

Their cabins are round and vaulted. They are lathed with canes and plastered with mud from bottom to top, within and without, with a good covering of straw. There is no light except by the door; it is as hot as a vapor bath. At night a lighted torch of dried canes serves as a candle and keeps all the cabin warm. Their bed is of round canes, raised on four posts, 3 feet high, and a cane mat serves as a mattress. Nothing is neater than their cabins. * * * Their granaries are near their cabins, made like dove-cotes, built on four large posts, 15 or 16 feet high, well put together and well polished, so that the mice can not climb up, and in this way they protect their corn and squashes.²⁷

THE ROOF

The roof of the wigwam was sometimes covered with a thick thatch of cornstalks, tied in place to the roof framework, and still further held in place and made more rain resistant by a layer of smooth, close-woven cane matting, which was also tied to the roof framework. This cane matting was woven from narrow strips of the outer portion of the cane stems.

Early explorers stated that these roofs turned the rain very well, and in some instances lasted from 10 to 20 years. In other cases long marsh grasses took the place of cornstalks. The roofs were also often made of long, wide strips of bark, laid on the roof framework with the inner side of the bark turned upward. The joints between these strips of bark were covered with other strips, with the inner side of the bark turned downward. This gave a roof construction resembling the white man's tile roof.

The author found shingles, made of the bark of the cottonwood, covering a grave in a rock shelter on the Cumberland Plateau, about 80 miles east of the Gordon site. They were shaped like our house shingles of the present day. They were about 11 inches long and from 5 to 8 inches wide. The bark strips for the bark roof of the old wigwams were probably several feet in length.

The Gordon site people do not appear to have used conical-shaped tipis covered with the skins of the bison or other large animals.

²⁷ Swanton's "Indian Tribes of the Lower Mississippi Valley," Bull. 43, Bur. Amer. Ethn., p. 315.

POPULATION OF GORDON TOWN

There is no means of determining with precision the exact number of people who lived in Gordon town.

Judging by the many accounts given by early travelers among the Indians of the southern United States, it is conservative to count three warriors, or a total of 10 men, women, and children, to a wigwam, in towns with habitations similar in size to those on the Gordon site. The Gordon wigwams have only one fireplace, and appear to have been occupied by only one blood family. According to the customs of other southern Indians, a typical family in one of these wigwams probably consisted of the father and mother and their unmarried children, and also one or two sons-in-law with their wives. These sons-in-law lived with the wife's parents for a year or so. There was also in many cases an aged and infirm parent, and sometimes adopted children; and in some rare instances a slave or a captive warrior, adopted in place of some deceased member of the family.²⁸

As stated heretofore, there are evidences that there were about 125 wigwams in Gordon town. Considering the facts just brought out, it is quite probable that these 125 wigwams contained about 375 warriors, or a total of about 1,250 men, women, and children.

GROUPS OF CLAN DWELLINGS

A study of the map of Gordon town in Plate 95 shows the house circles to be gathered more or less into groups. This may be more apparent than real, as what appeared to be some extremely faint traces of circles were found in the space shown as vacant on the map. These traces were not sufficiently distinct to justify recording them without confirming their existence by the spade. Should this grouping prove true, it possibly means that each of the groups was inhabited by members of a clan, as among the Creeks, where "The towns were composed of irregular clusters of four to eight houses, each cluster being occupied by the representatives of a clan."²⁹

DESERTED BY ITS INHABITANTS

As previously stated, the ancient inhabitants for some unknown reason deserted this town site.

They evidently were in no immediate danger of attack by an enemy because they had time to take with them their domestic pottery and other utensils. Probably hoping to return, they left all the buildings standing except the ceremonial house or temple and

²⁸ Reference is made to the articles Family, Marriage, Women, Slavery, and the references therewith, in "Handbook of American Indians," Bull. 30, Bur. Amer. Ethn.

²⁹ Article "Creeks," Handbook of American Indians, Bull. 30, Bur. Amer. Ethn., pt. 1, p. 364.

one or two wigwams. These were burned either at the time the inhabitants left or later. If they had fled hurriedly before an attack, they would probably have burned all the buildings to prevent their falling into the hands of the enemy. If the town had been taken and not inhabited by the enemy, the enemy would have burned it if they expected the old inhabitants to return.

Everything points to an orderly desertion of the site and a slow and gradual decay and covering up of the deserted village with black loam.

PROBABLE RELATIONSHIP BETWEEN THE GORDON TOWN AND MADISONVILLE, OHIO

There is evidence to show some probable relationship between the Gordon people and those at Madisonville, Ohio, in the outskirts of Cincinnati. The little Gordon skeletal material that has been unearthed appears to resemble that of Madisonville.³⁰ The culture of Gordon also somewhat resembles that of Madisonville.

The similarity of some of the artifacts of the Gordon region to those of Madisonville is very noticeable.³¹

The people on both the Gordon and Madisonville sites buried their dead extended at full length and on the back. Both sometimes buried the skeleton after decay of the flesh. Gordon used stone-slab coffins; Madisonville did not. At Gordon the slabs could be easily obtained, being found lying loose in the bed of the neighboring brook. At Madisonville slabs could be obtained only by quarrying them with very great labor from horizontally bedded stone. This was a work of almost prohibitive difficulty to men of the stone age.

The use of the cache pits uncovered at Gordon site appears to have been somewhat different from that of those found by Doctor Swanton and others at Madisonville. The Gordon pits contained no bones or pottery fragments and were filled solely with loose black soil. They were in the floors of buildings which had apparently been used for sacred purposes. Those at Madisonville probably were used as domestic storage pits and for similar purposes. Possibly the future excavation of some of the spaces between house circles at Gordon may show similar domestic storage pits.

The owl was represented in the cultures of both towns. (Pls. 119, b; 120, a.)

Several symbols found at Madisonville resemble similar ones found on sites in middle Tennessee which are related to Gordon. These furnish indirect evidence of relationship between Gordon and Madisonville.

³⁰ See Doctor Hrdlička's report, p. 612.

³¹ See pls. 1, 16, 17, 18, 20, 23, and 24 and figs. 2 and 5, Hooton and Willoughby, "Indian Village Site and Cemetery near Madisonville, Ohio," *Papers Peabody Museum, Harvard Univ.*, vol. 8, no. 1.

SIMILAR FOOD ANIMALS

Their favorite food animals changed very little after the Madisonville people left their Tennessee kin. The Madisonville people had learned to eat the dog. Some other changes will be seen. A comparison of the following table of food bones from cache pit III on the Madisonville site with the table of the food bones of the Gordon and Fewkes sites, near the end of this volume, will be instructive.

CACHE PIT III, 6 ³²

	Per cent		Per cent
Deer.....	80.0	Raccoon.....	0.5
Turkey.....	8.0	Beaver.....	.5
Bear.....	2.5	Opossum, puma, fish, fox, otter,	
Elk.....	2.5	woodchuck, badger.....	1.0
Dog.....	2.5		
Turtle (2 species).....	2.5	Total.....	100.0

A study of the Gordon and Madisonville sites throws some light on the comparatively late arrival of the bison in the region east of the Mississippi and south of the Ohio.

As stated elsewhere in this volume, the bison had probably not arrived in Tennessee at the time the Gordon site was inhabited; but the Madisonville people appear to have come in contact with it after they left their Gordon kin. This is shown by the fact that not a trace of the bison was found on the Gordon site, while at Madisonville it appears to have been eaten, but sparingly.

WANDERINGS OF THE GORDON PEOPLE

The possible relationship between Gordon town and some of the other ancient peoples who have lived in the central basin of Tennessee has already been indicated in this work. There is some extremely hazy evidence of the migration of these ancient Gordon kindred peoples from the Northwest down into the mountainous regions of southeastern West Virginia and southwestern Virginia. There are some faint archeological evidences that they remained for a long period of time in this portion of the Virginias.

The author has found apparent traces of them after they reached the Jasper Allen mound region in Scott County, Va., about 30 miles northwest of Bristol, Tenn. These traces are shown by relics found by Mr. Valentine in the Jasper Allen mound, and now in the Valentine Museum, Richmond, Va. One is a water-bottle-shaped vase with four world-quarter human prayer heads. Another is a few fragments of a water-bottle-shaped vase with equal arm cross or four world-quarter symbols with encircling sun ring. There are also other traces in these Allen mound relics.

³² Hooton and Willoughby, op. cit., p. 32.

Somewhere in southeastern West Virginia and southwestern Virginia the Gordon people appear to have been struck, possibly by the Cherokees, who had hitherto been living in their former northern homes on the extreme headwaters of the Ohio River or were gradually working southward therefrom. The invading Cherokees appear to have driven out the Gordon bands, and advanced down the Allegheny range until they reached the region in eastern Tennessee and western North Carolina where they were later found by the early whites.

The driving out of the ancient Gordon bands was several hundred years before 1540, the time at which De Soto found the Cherokees in this region, firmly fixed in these seats, which even then appeared to have been long occupied by them.

The advancing Cherokees drove the apparently kindred Gordon bands to the south and southwest. Traces of them are found near Augusta, Ga.; Moundsville, Ala.; Chattanooga, Tenn.; Henry's Island, in Tennessee River, near Guntersville, Marshall County, Ala.; Castalian Springs, Sumner County, Tenn.; near Labanon, Wilson County, Tenn.; near Hendersonville, Sumner County, Tenn.; at Nashville, and on the Gordon site and at many other places in the Cumberland Valley.

When the Gordon bands reached the Central Basin of Tennessee they established many large settlements within a radius of 75 miles of Nashville. Their seats were towns of large size and strongly fortified. The immense number of graves showing traces of relationship indicate they lived in this region for many hundreds of years. There are also many other evidences corroborating this. They appear to have been gradually driven out of this fertile basin at some unknown time before the year 1000 A. D. When they were driven out they went slowly, in scattered bands and at different times, down the Cumberland and out the Ohio River, forming scattered settlements at many points in their slow removal. Traces of a very few of these settlements have been found near the mouth of the Cumberland and along the banks of the lower Ohio River from Shawneetown to the mouth of the Ohio.

At the mouth of the Ohio River some of these bands or tribes went downstream, where traces of them have been found in southeastern Missouri, around New Madrid; in northeastern Arkansas; on the White and St. Francis Rivers; and also around the mouths of the Arkansas and Yazoo Rivers.

At the mouth of the Ohio other bands or tribes appear to have gone up the Mississippi. Possible traces of some of their settlements in Illinois, near the Mississippi, between the mouth of the Ohio and the Missouri, are to be found at the following points described in the Twelfth Annual Report of the Bureau of Ethnology:

Randolph County.—Mill tract; De Frenne place; Bluff Ferry, 1 mile below Rockwood; Rockwood and several points in its immediate vicinity; Sparta.

Jackson County.—On Big Muddy River in sec. 22, T. 10 S., R. 3 W.

Alexander County.—Hale's place.

Union County.—Linn's place; NW. $\frac{1}{4}$ sec. 16, T. 13, R. 2 W.; NW. $\frac{1}{4}$ sec. 16, T. 10 S., R. 2 W

They also appear to have lived at several points along the Illinois River and elsewhere in Illinois and adjoining States. The remains left by the ancient Gordon peoples in their long wanderings through the southern United States mark the highest degree of culture reached by stone age man east of the Mississippi River and south of the Ohio.

DATE OF DESERTION OF GORDON SITE

All the facts indicate that the Gordon people came into the Central Basin of Tennessee at some unknown time prior to A. D. 1000 and that their arrival may have been hundreds or even a thousand or more years before A. D. 1000. They probably arrived in different bands at widely separated intervals. Their settlement of the region was probably gradual. They appear to have built many important towns and small settlements. Somewhere in nearly every rich bottom of the Cumberland River in middle Tennessee traces of one or more of their homes can be found. They probably remained in the Central Basin of Tennessee for at least 450 years.

It is impossible to state what peoples lived in middle Tennessee before the Gordon people. Beyond question many wandering bands of savages drifted into this region before the Gordons, and these bands gradually went out or were forced out later. The Gordon people appear to have built some of the larger towns in middle Tennessee. Probably one-third of the known Indian remains in this region of Tennessee belongs to the Gordon kin.

The Gordon site furnishes some facts which will throw additional light on the probable date of its desertion. These facts are as follows:

There is an accumulation of from 14 to 20 inches of black loam covering the floors of the ruins. It will average about 16 inches.

The present depth of rich black loam on top of the original clay subsoil on this site, on the exterior of the house circles, immediately under the following letters on map (pl. 95), is:

	Inches
Under C, between circles Nos. 1 and 3.....	31
Under D, between circles Nos. 3, 5, and 6.....	24½
Under F, to the east of circle No. 24.....	22
Under H, between circles Nos. 17 and 18.....	21

There are a number of very large trees standing on top of these ruins.

A beech, 13 feet in circumference at 3 feet above the ground, stands upon the line of the earthen wall embankment on the west side of the town.

Several elms, measuring from 13 to 13½ feet in circumference at 3 feet above the ground, stand upon the wigwam circles.

An elm, 12 feet in diameter at 3 feet above the ground, stands upon the line of the earthen wall embankment on the eastern side of the town.

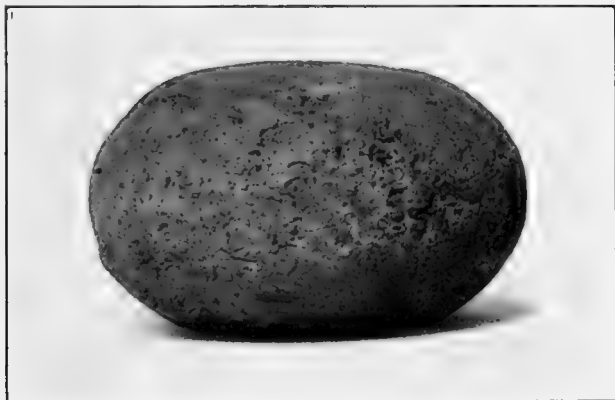
On the rim of circle No. 31 there is an elm stump which measures 17 feet in circumference at 20 inches above the ground, which corresponds to a circumference of 13 feet at 3 feet above the ground. This stump has somewhere between 300 and 325 annual growth rings. About 8 inches at the center is somewhat decayed, and this prevents an accurate count of that portion. Two hundred and eighty-five rings could be plainly seen, and there were enough indications in the partially decayed portion to render a total of 300 to 325 rings a conservative estimate. This elm had reached a ripe old age and died a natural death. The life of an American elm is about 300 years.

In short, in the year 1920 there was an average accumulation of about 16 inches of black loam covering the floors of these ruins, and upon the ruins were living trees at least 300 years old.

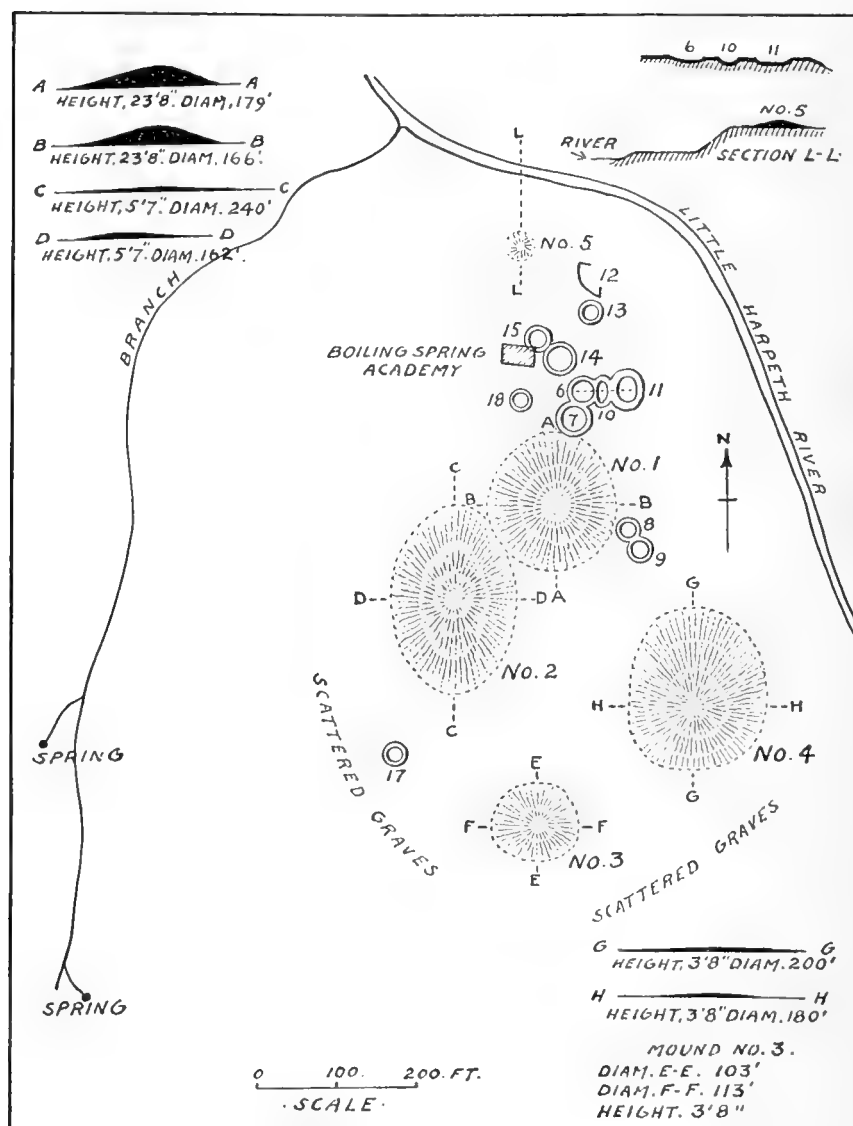
This means that the abandonment of Gordon town was some time prior to 1620, sufficiently long to allow an accumulation, up to the year 1920, of at least 16 inches of black loam on the deserted dwelling floors.

No one has yet made accurate records of the rate of accumulation of black loam on sites and under conditions similar to Gordon.

The Gordon site is a key site. Determining its approximate age will give probable dates to a large number of contemporary related sites in middle Tennessee and relative dates to its possibly kindred sites; the probably earlier ones in West Virginia, Virginia, east Tennessee, Georgia, and Alabama, and the probably later ones in Ohio, Illinois, South Carolina, Missouri, and Arkansas.



DISCOIDAL AND TWO BOWLS FOUND NESTED IN GRAVE, CIRCLE
NO. 20



MAP OF FEWKES GROUP



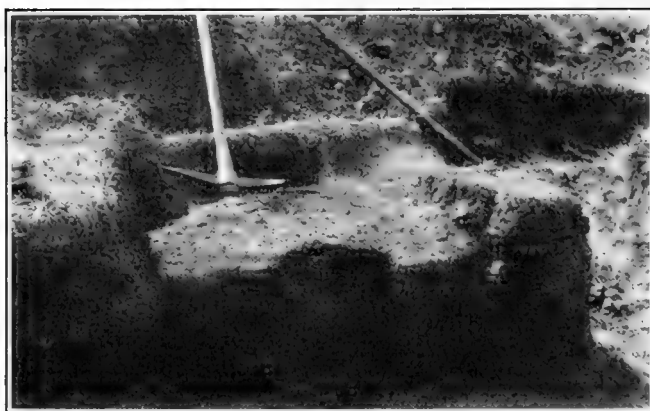
a



b

a, Photograph of west side of Fewkes group

b, Fewkes group



b



c



d

a, Post holes
b, Bed of maize and maize meal

c, Altar in House of Mysteries
d, Rectangular cavity and two piles of stones

THE FEWKES GROUP

During October, 1920, an unnamed Indian village group was partially excavated at Boiling Spring Academy, about 1 mile north of Moran Station on the Louisville & Nashville Railroad and 6 miles northeast of Franklin, on the Little Harpeth River, in Williamson County, Tennessee. At the request of many citizens of Tennessee this site was named the Fewkes group in honor of Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, who had visited it and recognized its possibilities a few months before.

At least two different peoples had lived on this site. The earlier people, whom I have designated the flexed-burial people, on account of their mode of burial, built the mounds and most of the other remains. The traces of these flexed-burial people cover 14.6 acres. At a later date a smaller band of some other tribe located here. The flexed-burial people buried the bodies closely flexed in either hexagonal or almost circular stone-slab coffins. The later band buried in rectangular stone-slab graves, with body extended full length, on its back.

The Fewkes group consists of five mounds, one on each of the four sides of a level town square and another on the edge of the river bank. There are also traces of about a dozen house circles and a small remnant of what was once a considerable stone-slab cemetery.

As far as can now be determined the circular buildings of the common people were scattered about the outer edges of the group of four mounds inclosing the town square.

Most of these habitations were to the west of mounds Nos. 2 and 3 and to the north of mounds Nos. 1 and 2, east of mound No. 1 and near mound No. 5 and possibly to the south of mound No. 3. These sites are inclosed by dotted lines on the map. Some houses of more than usual importance adjoined mound No. 1 on the northeast side.

Mound No. 2 on the map (pl. 124) is a low, oval mound situated on the western side of the town square. It is also shown in the photograph, Plate 125, *b*. The site of this mound had been lived upon for a time before the mound was raised. The mound was commenced and raised to a height of 3 feet and a building or buildings, for unknown purposes, erected thereon. This building was later torn down, and then the mound was raised 3 feet higher and again used for unknown purposes for a period. Then the town house or ceremonial house was built upon it. This building had a rare, beautiful floor made of clay, smoothed, and then hardened by fire, and later covered with a thin black coating which was then polished. This coating was black and glossy when uncovered.

In the center of the building on this polished floor was found an altar which was similar to the altar shown in Plate 100.

The walls of the building were made of cane stems, with the leaves still attached, which had been woven in and out between the upright posts supporting the roof and plastered with earth. Traces were found of the fine cane matting which had been hung as a decorative wall covering on the interior. In some way this building was destroyed by fire. Earth was thrown on the remains in time to smother its still glowing embers. This produced a large amount of powdery charcoal containing fragments of cane stems with the leaves attached. It also contained minute portions of the charred cane-matting wall covering.

After this building was burned the mound was again raised $1\frac{1}{2}$ feet or more in height. All traces of its last use had been destroyed by 85 years of cultivation.

The low mound, No. 3, on the south side of the town square, was used for burial by these flexed-burial people.

The tall oval mound, No. 1, on the north side of the town square, is 180 feet across the base and 25 feet in height. It is the most conspicuous mound in the group. Lack of funds prevented its excavation.

House circle No. 6 was one of the group of buildings, Nos. 6, 10, 11, whose functions were closely interwoven. No. 6 contained in its center a fine altar or fire-bowl.

There was evidence that this town had either been taken by an enemy who burned it, or the ancient inhabitants, forced to flee, had burned their homes to prevent their falling into the hands of the invader.

House circle No. 17 (shown in pl. 136, *b*) was probably a typical dwelling. Its floor was of hard-packed clay. The fire-bowl was sunk in the center of the floor, and not raised above the floor, as was customary at Gordon town and in several other middle Tennessee towns. At this fire bowl a puzzling burial was unearthed. A child, about 12 years of age, was buried by the side of the upright stone slab seen in Plate 136, *b*, with its head resting just within the edge of the fire bowl, whose rim had been cut away at this point to admit the top of the child's head. The fire bowl was found still filled with ashes. These ashes covered the top of the child's head, which showed not the faintest trace of the action of fire.

The graves of two other children were also found in the floor of this house. The highest of the upright stone slabs of one of the coffins can be seen to the right of the feet of the woman.

At both the Gordon and the Fewkes groups, every piece of bone and every fragment of pottery was carefully saved and location within certain limits noted. These thousands of fragments have

given a reliable record of the food animals and a fairly complete list of all the sizes and shapes of their domestic pottery.

Both of these sites, when partial excavations were completed, were accurately restored to their original shape, for the benefit of future explorers. The interesting altars, fire bowls, building postholes, and vestiges of domestic life were carefully preserved and again covered up so as to allow their future study. The citizens of Tennessee strongly urge that the Fewkes group be made a national monument.

FERTILE REGION AROUND FEWKES GROUP

The Fewkes group was in the midst of one of the most thickly settled ancient Indian regions in Tennessee. A large number of Indian villages and smaller settlements existed along both the Little Harpeth and the Big Harpeth Rivers in Williamson County. These two streams drain the most fertile portion of the blue-grass region of Tennessee. It attracted ancient man as well as modern man. Traces of Indian habitations are to be found around each of the many large bold springs for which this region is celebrated.

There are signs of a small settlement of apparently only three or four houses around the bold spring $1\frac{1}{2}$ miles from Fewkes group up the Little Harpeth River. One mile farther upstream, at another big spring, on the Crocket farm, are traces of a considerable settlement and of a large stone cemetery. This cemetery has been destroyed by cultivation.

One and one-half miles to the southwest of the Fewkes group, around a big spring, was another small village. Two miles down the Little Harpeth from Fewkes group is a village site and mound. Thus it continues all along the two Harpeth rivers in Williamson County. It is not probable that all of these sites were inhabited at the same time, but everything points to a large Indian population in this region.

There are records of 29 ancient inhabited sites reported in Williamson County. A careful survey of this county would reveal possibly as many more small sites. Most of these sites appear to have belonged to a people like the last comers to Fewkes group, who buried in rectangular stone-slab coffins, with bodies on the back, extended full length.

MOUND NO. 2

Mound No. 2 is a low, oval mound on the west side of the town square. It measures 235 feet north and south across the top and 160 feet east and west and is at present $7\frac{1}{2}$ feet high.

Plate 125, *a*, shows a view of the Fewkes group taken from the hillside to the west of the group. The laborers are standing on mound No. 2, which they are excavating.

The town had been inhabited for only a short time before this mound was raised. This is proved by the following facts:

In this mound was an ancient dwelling fire bed on the original surface of the soil. This fire bed was a shallow circular depression, $2\frac{1}{2}$ feet in diameter, and was filled with ashes and broken animal bones, such as are found on domestic hearths. It resembled in shape that found in house circle No. 17 but was not so well made. It is shown in Figure 156 as ash bed 27. This fire bed belonged to a dwelling which had stood on this site before the mound was raised. In other words, the town had been inhabited before mound No. 2 was raised. This is further indicated by the animal bones in the ashes of this early wigwam showing more signs of age than those in mound No. 2, which was later raised over them.

This mound, as will be seen later, was raised in different stages. The soil in the lowest layer, belonging to its first stage, contained about one-third as many fragments of animal bones and pottery as the soil in the upper layers. This shows its erection was begun at a time when only one-third as many evidences of human occupancy had accumulated in the surrounding surface soil from which the mound was taken as were in the soil when the later stages were added.

There has been nothing unearthed on this site to enable us to determine with any degree of certainty the approximate date of the flexed-burial people who first occupied it, who they were, or how long they remained.

STAGES IN ERECTION

After the site had been occupied for some unknown length of time the dwelling or dwellings were cleared away and the mound was raised to a height of about 3 feet. Its shape at that first stage is shown by the dotted line marked "First level," in vertical section shown in Figure 156.

BUILDING B

On the mound at this stage—the first level—one or more buildings were erected. This has been designated "Building B." The mound was not sufficiently explored to determine the extent or precise character of building B and its possible neighbors. Figure 157 shows a diagram of the mound at the first level. The portion excavated is shown by the dotted lines. The large round dots represent

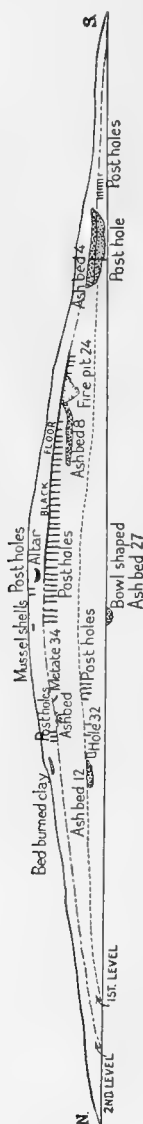


FIG. 156.—Vertical section of mound No. 2

postholes belonging to buildings. The number of postholes, considering the small space uncovered, leads us to hope for a fairly

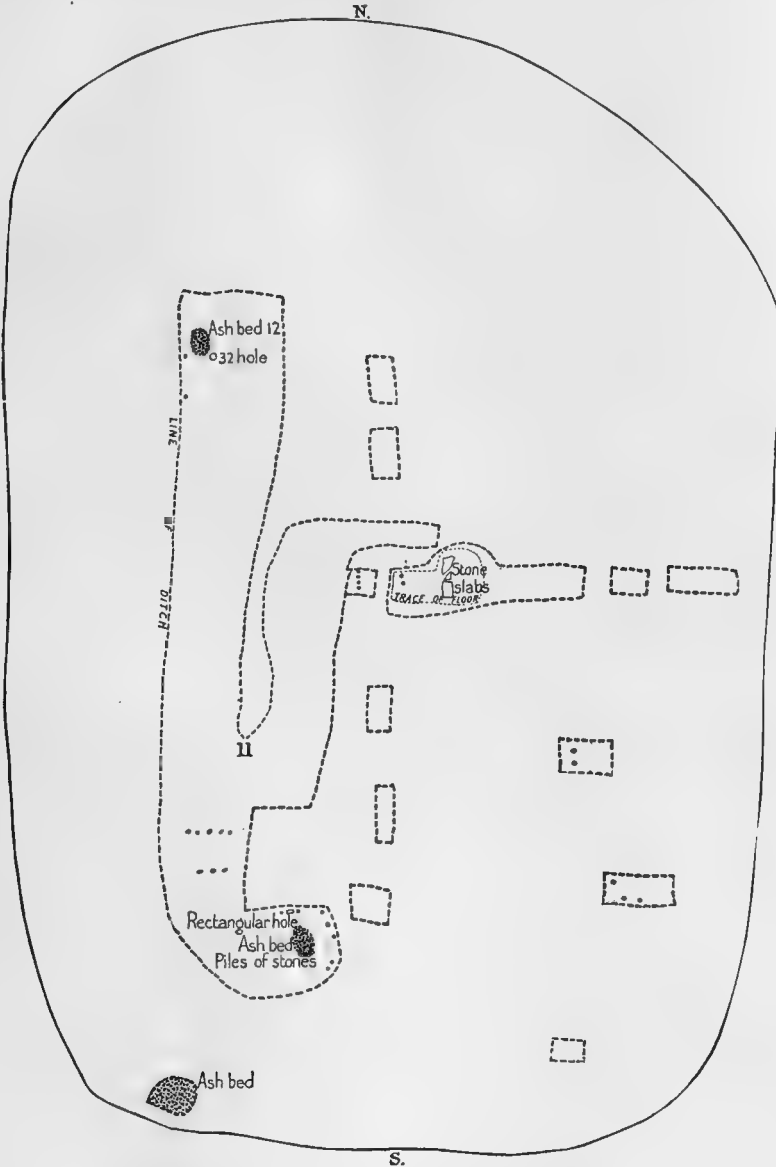


FIG. 157.—Diagram of mound No. 2 at first level

accurate ground plan of all the structures when the mound shall have been thoroughly explored.

A photograph of some of the postholes of building B and its neighbors is shown in Plate 126, *a*. This building had a fairly level floor.

The soil of the floor apparently had only such packing down as would arise from use. It had not been made smooth; neither had it been hardened by fire. On the floor was a pavementlike arrangement of stone slabs, marked "Stone slabs" in Figure 157. These slabs were, respectively, 32 by 26 by $3\frac{1}{2}$ inches, 28 by 26 by $3\frac{1}{2}$ inches, and 12 by 12 by 2 inches. Nothing was found under them. Further excavation will be required to bring out complete details of this pavement.

ASH BED

In the northwestern portion a fire bed or ash bed, No. 12, was found. It was 6 by $5\frac{1}{2}$ feet, and was not bowl shaped, but shaped as shown in Figures 156 and 157. It was made of clay and was covered with a layer of white ashes from 1 to 2 inches in thickness, which contained no bones or pottery fragments. The fire bed did not appear to have been long in use, because the clay was not burned hard.

Adjoining the southeast corner of this fire bed was the hole, No. 32, Figure 157. It was 6 inches in diameter and 12 inches deep. It did not appear to be a posthole, as the loose black earth which filled it was more fluffy and powdery than that in the postholes. It contained no ashes or pottery, but on the clay bottom we found four unworked fragments of deer bones. It evidently had a definite, but now unknown, use.

DISCOIDAL FOUND ON FLOOR

At 11 the beautiful small biconcave discoidal shown in Plate 129, *a*, was found. It is $1\frac{3}{8}$ inches in diameter and was made of a fine-grained, dark red, compact, slightly clayish sandstone, which contains a few specks of mica. It was found on what was about the level of the floor of Building B, where it probably had become covered up in the rubbish and lost.

SACRED IMAGE HOUSE

In the southwestern portion of the mound we came upon the ruins of a structure to which we have given the name of Sacred Image House. This was a very small building, and apparently of great sanctity. Here were found traces of what was probably an ancient sacred image or idol, the remains of their sacred maize and maize meal, a peculiar arrangement of rectangular piles of stones probably belonging to a shrine, and traces of some of their ancient fire ceremonies.

This building was lighter in construction than the others on this mound at this stage. Its postholes are closer together, many being smaller than those of the other buildings, and only from 9 to 10 inches apart.

On the interior of this Sacred Image House, at the doorway, was a peculiar arrangement of two posts. A somewhat similar arrangement appeared in a later building, the House of Mysteries. The use of these two posts inside the door is not known.

TRACE OF AN IMAGE

In what appeared to be the north wall of this structure was a rectangular cavity, a diagram of which is shown in Figure 158. It measured 10 inches across the top, 14 inches in height, 10 inches across the bottom, and was $3\frac{1}{2}$ inches deep. The diagram in Figure 158 and the photograph in Plate 126, *d*, both show there was a layer of mingled ashes, charcoal, and earth immediately below this cavity, and also undisturbed layers of ashes just above the top of the cavity. The photograph (pl. 126, *d*) shows faint traces of these undisturbed layers of ashes immediately over this cavity, showing clearly that the wooden object which caused the formation of this cavity was placed in the wall before the stratified and undisturbed ash beds were formed above it. Therefore it is not of white-man origin. It belongs to the first stage of the mound. Both the diagram and the photograph show very clearly that this wooden object was in the line of wall. It was, beyond question, an object of importance, and was placed in a prominent place. Wood was difficult for a stone age Indian to work. A wooden object so placed in the wall would probably be of some real importance. A plaster cast was made of a portion of the cavity and the decayed wood found therein, which proved to be red cedar, was saved. The size and shape faintly suggest an image or idol with a rectangular base, somewhat similar to the wooden image found in Bell County, Ky., formerly in the collection of Col. Bennett H. Young, and now in the Museum of the American Indian. From the accounts of early white visitors to the southern tribes of the Mississippi Valley it is known that such images were often placed in somewhat similar positions on the sides of the walls of sacred structures.

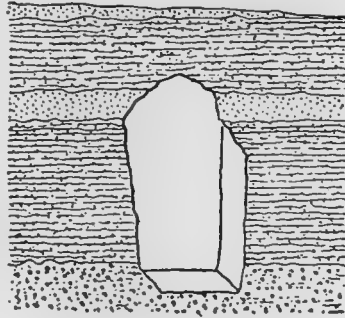


FIG. 158.—Diagram of cavity

TWO RECTANGULAR PILES OF STONES

Within this room were found two piles of stones. These are shown in the photograph (pl. 126, *d*) and in the diagram (fig. 157). These piles are somewhat irregularly rectangular and were about 15 by 14 inches and 6 inches in height. The stones comprising the piles varied from the size of the fist to five times that large. The indi-

vidual stones were unusually rectangular for stone-age man. They showed no signs of having been shaped by man and evidently had been selected with care. Both of these piles of stone rested on the same bed of gray ashes. The ashes also were mingled through the bottom layer of the stones. They contained no fragments of pottery or bones and showed no signs of being used for domestic purposes. The soil under one of the piles of stones was burned red, showing strong action of fire; the soil under the other showed no effect of fire. None of the stones in either pile showed any signs of strong heat. These two piles appear to have been placed in position after the fire had been discontinued at these points but before the ash bed had been removed. They were probably used in some of the sacred rites. Their location on the floor and their general appearance suggest their being portions of an ancient shrine.

MAIZE AND MAIZE MEAL

Immediately south of the piles of stones was found what was probably the remains of a store of maize and maize meal, shown in Plate 126, *b*. There was about one peck of this material. It was found upon an earthen platform about 30 inches above the floor. The maize had been shelled. The grains were well preserved on account of having been charred. This ancient maize was submitted to Dr. W. E. Safford, who reported:

This maize owes its preservation to the fact that it is charred and, like charcoal, will last indefinitely. The grains have been removed from the cob, but they are so well preserved that their size and shape can easily be seen, showing that the variety to which they belong is that known as the many-rowed tropical flint, about halfway between a true flint and a popcorn. Corn of this variety occurs in the West Indies. * * * Associated with it were pieces of charred wood and lumps of a substance, evidently of organic origin, which may possibly have been finely ground maize made into a kind of mush.

Maize and maize meal are intimately connected with many of the rites of our Indians.

A photograph of some of the grains of this corn is shown in Plate 127. Through the courtesy of Dr. W. E. Safford there is reproduced alongside this ancient corn a typical ear of its nearest modern kin, the many-rowed tropical flint corn from Cuba. This ear of Cuban corn is 6½ inches long and 1½ inches in largest diameter. The grains of the Fewkes corn are somewhat similar both in size and texture to those of the Cuban corn. An ear of this ancient corn would probably yield about one-third as much as an average modern ear. The Cuban corn is yellow. The ear shown in the illustration has four red-tinged purple grains scattered over it.

While sacred corn might vary from tribe to tribe, each tribe commonly had some one variety which they held for sacred uses only. This was planted so as to be in proper condition for use when the

time arrived for celebration of certain rites. The sacred variety was not, as a rule, different in size of ear from the corn cultivated for food. It is therefore probable that the ear of Cuban corn fairly represents in size, at least, one of the varieties of corn used for food by the Fewkes people.

BUILDINGS ON FIRST LEVEL

Not more than one-fifth of the area of this large mound was excavated. From the limited space uncovered it is impossible to discover the extent of the buildings or their number. Judging from the post-holes found in all three of the sections of the mound excavated, it is probable that the mound at this stage had upon it one or more large buildings, some of which were subdivided into two or more rooms, or there may have been two or more isolated buildings upon it. Mounds with both characters of buildings have been known in the South.

MOUND NO. 2 AT SECOND LEVEL

After the buildings on the first level had been used for some unknown length of time the structures appeared to have been torn down. At least there was no trace of their having been burned. The mound was then raised about 3 feet higher, to its second level.

Before it had quite reached its second level it appears that a portion of it had been used for a short time for domestic purposes, as the remains of a large domestic ash bed were found at 8, Figure 156. This ash bed contained a large amount of fragments of domestic pottery and broken animal bones, but the soil under it did not show signs of long continued action of fire. Ash bed 8 also yielded two bone awls.

After this period of domestic use the mound was raised or leveled a few inches, and reached its second stage.

FIRE PIT

At 24, Figure 156, was found a large fire pit. No fragments of pottery or animal bones were found in it. From the large amount of ashes in this bed and the appearance of the surrounding soil, a fire must have been maintained here for a long period of time.

BUILDING A—HOUSE OF THE MYSTERIES

After long use of the fire pit at 24 the ancient inhabitants decided to erect an important town house or House of the Mysteries. They smothered the fire with earth, and over the former fire pit, which they had left filled with ashes, they laid a floor of black, glossy earth, erected a building, and established an altar therein. This altar is shown in vertical section in Figure 156. A study of the vertical

section, coupled with the following facts, will establish the details of erection of Building A.

The top portion of the discarded fire pit, 24, contained a pile of four large pieces of charcoal, about 6 inches in diameter and from 6 to 10 inches in length. These were covered with a layer of mingled earth and ashes, as though they had been smothered with earth. Then the floor was smoothed and packed down, but not made level. After that a black glossy floor coating was applied, covering the old sacred fire pit, and also a considerable space in addition thereto. This floor can be seen in Figure 156.

The floor belonged to Building A, the town house, or, more properly, House of the Mysteries. The postholes belonging to Building A are shown in Figure 159, which is a diagram of mound No. 2 at its second level, when it was supporting this House of the Mysteries. There probably were also one or two other buildings on the mound at this stage.

Judging from its large size, as seen from a stone-age viewpoint, it is probable that Building A was used both for sacred rites and for public gatherings of many kinds. The House of the Mysteries most clearly conveys its meaning.

As far as the trenches uncovered this House of the Mysteries, it stood slightly to the westward of the central north and south line of the mound, though it may prove to have covered more space when all of it is unearthed. There are indications that it may have been divided into two rooms.

The building appears to have had upright posts set about 18 inches apart. The postholes were similar to those shown in Plate 126, *a*. The walls were made of cane stems woven in and out between the upright posts. The wattling was plastered with earth and the wall was hung with a layer of woven cane matting.

The doorway of the main room of the House of the Mysteries faced the east and looked out over the town square. On the interior, at the doorway, is an interesting curved arrangement of three posts. A similar arrangement of posts was found at the doorway of the Sacred Image House, on the first level. The use of these inner posts at the door is unknown.

THE ALTAR

Within the House of the Mysteries was an ancient altar at 35, Figure 159. Figure 160 shows a vertical section through this altar, and Plate 126, *c*, shows a photograph of it. The altar bowl was oval, 32 by 29 inches outside measure, and 28 by 25 inches, and 4 inches deep, inside measure. It was composed of hard-burned puddled red clay, and was filled with clean, white powdery ashes, which contained no charcoal or fragments of pottery or bones. The sacred fire had

been allowed to burn out without being smothered. The smooth, black glossy floor did not continue underneath the altar. Adjoining the altar on the south and level with its rim was a hard-packed clay

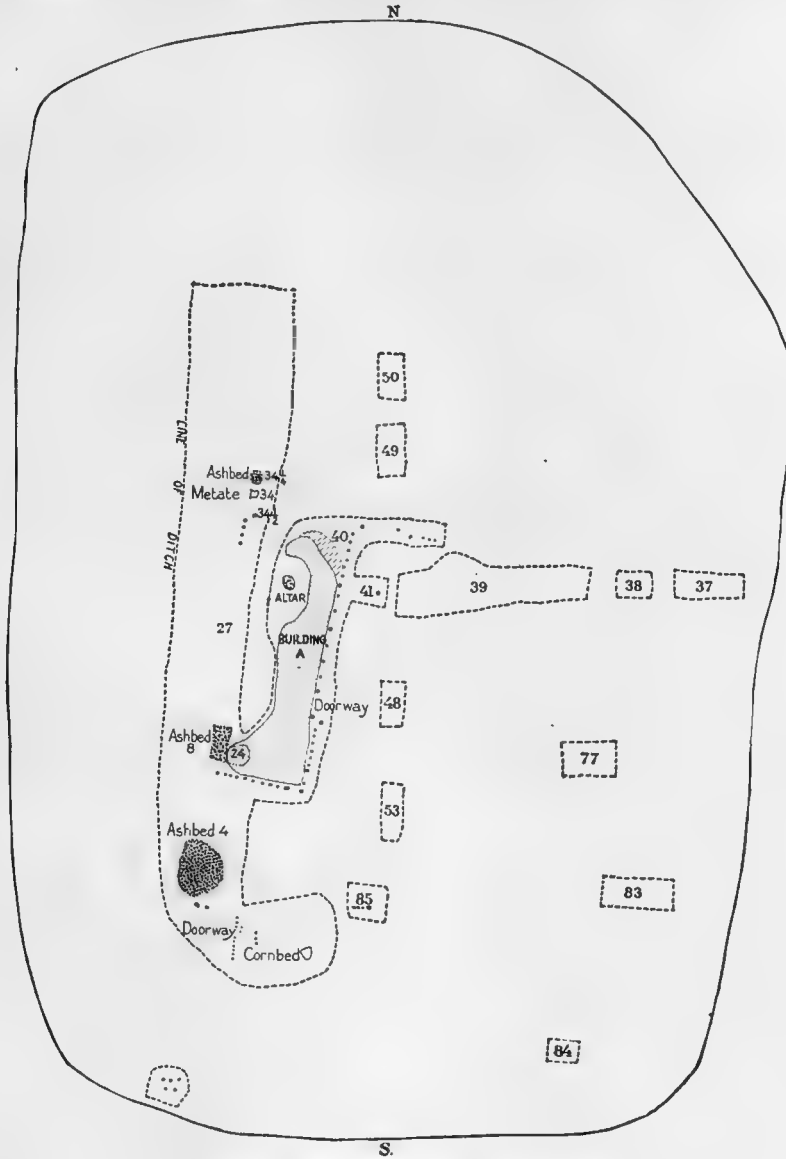


FIG. 159.—Diagram of mound No. 2 at second level

platform, out of which a cavity had originally been scooped and lined with puddled clay, thus forming an altar bowl.

Adjoining the altar on the north was a bed of mingled ashes, earth, and charcoal, as if the ashes of the altar had been raked out on this

side. While some of the ashes had been removed from this ash heap from time to time, an untidy remnant was left. The rim of the altar was only 8 inches beneath the present surface of the soil. The altar was not removed, but was carefully covered up. Mr. J. H. Womack, the owner of the site, promised to see that it was not disturbed.

ROOMS

This House of the Mysteries probably had two rooms. The portion which contains the altar appears likely to be the western room. This western room was probably 56 feet north and south by 22 feet east and west.

FLOOR

The eastern portion of the altar room appears to have had a beautiful, smooth, black glossy floor, like that in the temple of the Gordon site, and to have been composed in some places of clay and in others of the hard-packed soil of the mound, carefully smoothed and packed down, and hardened by a heavy fire built upon it. This fire was sufficient to more or less burn the floor to a depth of from 2 to 4

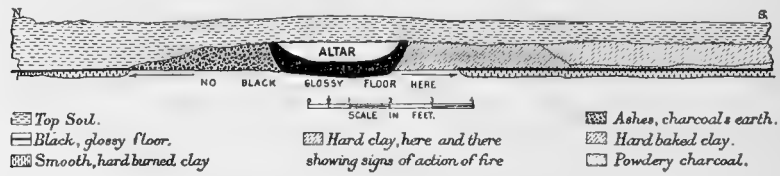


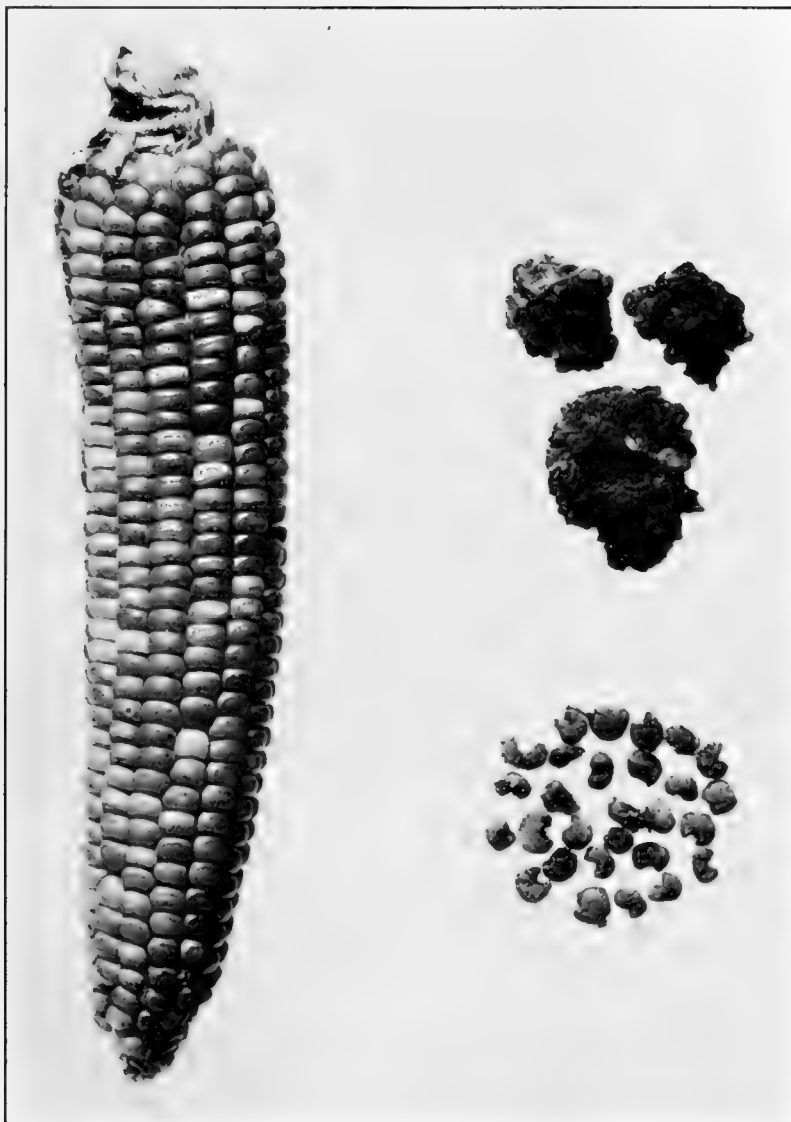
FIG. 160.—Vertical section through altar

inches. Then the ashes of the fire were thoroughly removed and a half-inch layer of clay, rendered black with some substance, was spread over it and given a fine polish by rubbing. The floor must have presented a most pleasing appearance.

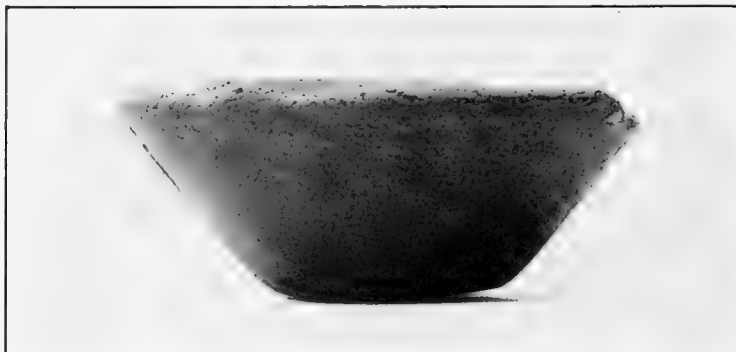
WALLS

The walls of this building were composed of poles from 3 to 7 inches in diameter and from 12 to 24 inches distant from each other, a large proportion being about 18 inches apart. These poles were doubtless bent over and tied together at the top, thus forming an arched roof, like those of many of the southern Indian buildings. One with this type of roof is shown in Figure 161. The walls had then been made by weaving canes in and out between the poles, thus forming a wattling, which was covered with a coating of clay plaster, both within and without. Traces of plastered walls of this type were found on the Gordon site and also in the building on circle No. 6 of Fewkes group. The method of construction is shown in Figure 162.³³ This clay-plastered wattled wall, when completed, was sometimes hung, both within and without, with a layer of woven cane matting covering on the inner wall.

³³ Reproduced from article, *Habitations*, Bur. Amer. Ethn., Bull. 30, pt. 1, p. 517.



CHARRED GRAINS OF CORN AND EAR OF MODERN CUBAN CORN



a



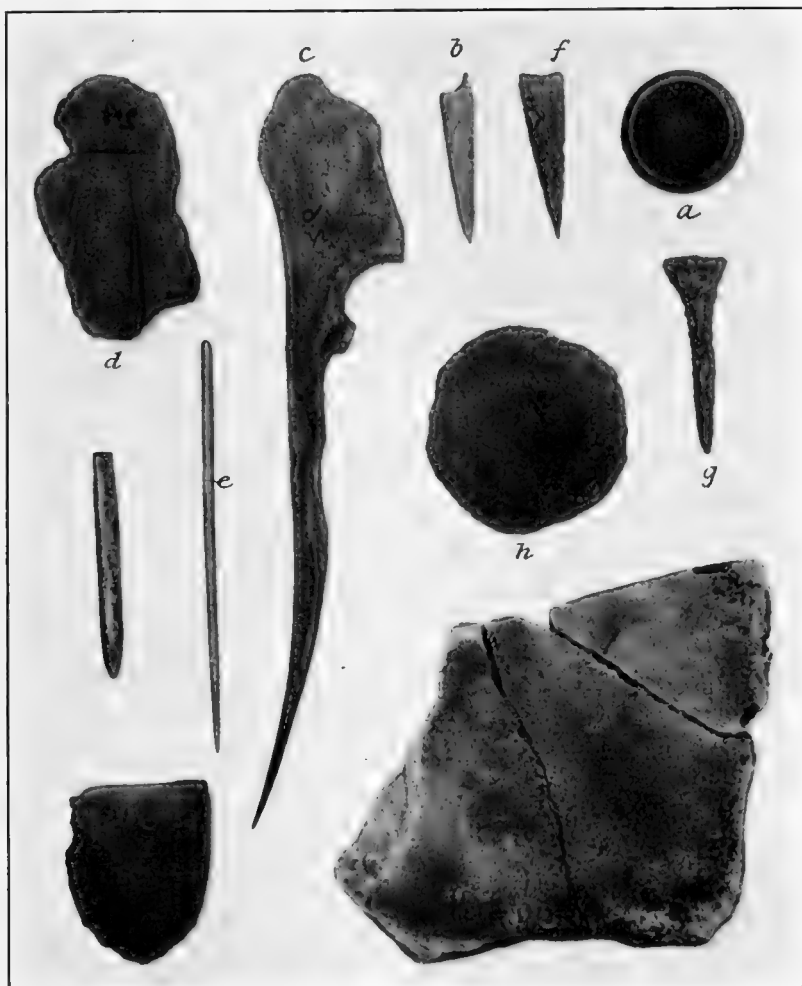
b



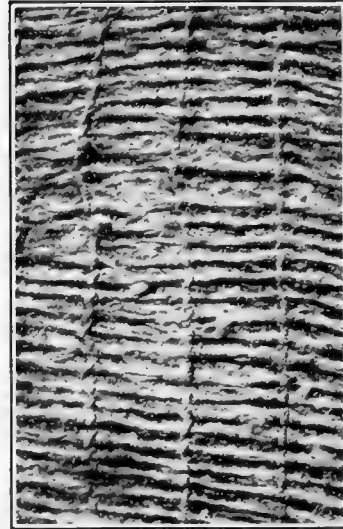
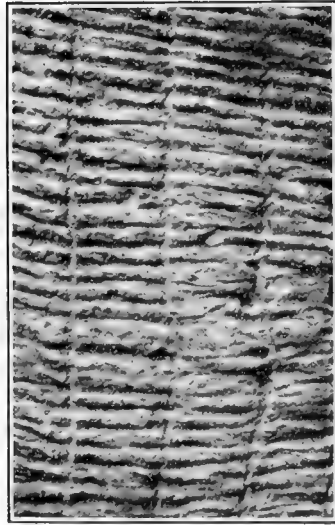
c

a, Pottery bowl, 9 inches in diameter
b, Pottery bowl, 7½ inches in diameter

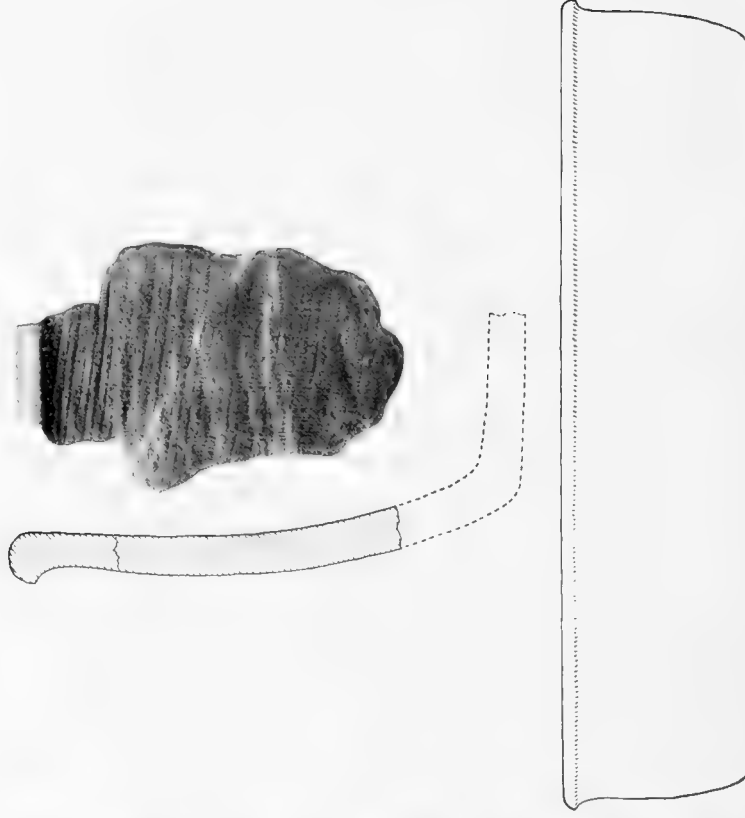
c, Metate and muller



OBJECTS FOUND SCATTERED THROUGH THE SOIL OF MOUND
NO. 2



a, Fabric used in modeling and handling vessel



b, Restoration of vessel No. 31, mound No. 2

DESTRUCTION BY FIRE

The House of the Mysteries was later destroyed by fire. There were evidences of the fallen-in plastered wall on top of the black, glossy floor in the layer of powdery charcoal near the line of the wall south of the hard-packed clay platform, as shown in Figure 160.

TRACES OF CANE MATTING

In the layer of charcoal near the door were very faint traces of the woven cane matting which appeared to belong to the interior wall covering. Apparently the wall had fallen in on the floor and the burning matting had been smothered.

Early white explorers in the southern United States saw similar cane matting wall coverings.

In 1811 two mummified bodies were found in a "copperas cave" 15 miles southwest of Sparta, White County, Tenn. They were buried in woven cane baskets very curiously wrought.

There is a specimen of beautiful ancient Tennessee woven cane matting preserved in the United States National Museum. This was found in a rock shelter on Clifty, near Harriman, Tenn. The author has several specimens which were found in rock shelters in Smith and Pickett Counties, Tenn.

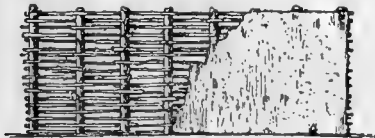


FIG. 162.—House construction, mound builders, plastered wattled work

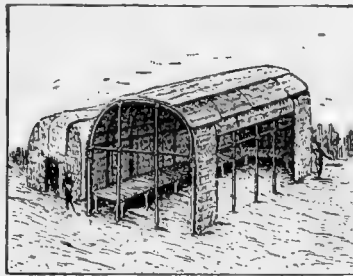


FIG. 161.—Mat house, Carolina Indians

Judging from this Clifty specimen, the weaver of the wall covering of the House of Mysteries in Fewkes group had introduced elaborate patterns in the woven designs. This natural dark cream-tinted cane matting was then further decorated with harmonious color designs, usually in black. This structure, with its polished black floor and beautiful cane matting wall decorations, indicates a high type of barbaric buildings.

The following extracts from Swanton's Indian Tribes of the Lower Mississippi Valley (Bull. 43, Bureau of American Ethnology, pp. 59 and 60) will throw light on the method of construction and appearance of this building. These extracts were taken by Doctor Swanton from several of the accounts of the early explorers.

The cabins of the great village of the Natchez, the only one I saw, are in the shape of a square pavilion, very low, and without windows. The top is rounded much like an oven. The majority are covered with the leaves and stalks of corn;

some are built of clay mixed with cut straw, which seemed to me to be tolerably strong, and which were covered within and without with very thin mats. That of the great chief is very neatly plastered on the inside. It is also larger and higher than the rest, placed on a somewhat elevated spot, and stands alone, no other building adjoining it on any side. It fronts the north and has a large open space in front, not of the most regular outline.

* * * * *

The natives go into the young woods in search of young walnut (hickory) trees 4 inches in diameter by 18 to 20 feet long. They plant the largest at the four corners to determine the dimensions and the size of the dome. But before planting the others they prepare the scaffold (rafters). This is composed of four poles fastened together above, the ends below resting at the four corners. On these four poles they fasten others crosswise 1 foot apart, all making a four-sided ladder or four ladders joined together.

That done they plant the other poles in the earth in straight lines between those at the corners. When they are thus planted they are bound firmly to a cross pole on the inside of each face (or side). For this purpose they use great cane splints to bind them, at the height of 5 or 6 feet, according to the size of the cabin. This is what forms the walls. These erect poles are not more than 15 inches apart. A young man then mounts to the top of a corner post with a cord between his teeth. He fastens the cord to the pole, and as he mounts inward the pole bends because those who are below draw the cord to make the pole curve as much as is needed. At the same time another young man does the same to the pole forming the angle opposite. Then the two poles, bent to a suitable height, are firmly and smoothly bound together. The same is done to the poles of the two remaining corners which are made to cross the first. Finally all the other poles are joined to the top, giving the whole the appearance of a bower in a greenhouse such as we have in France. After this work canes are fastened to the lower sides or walls crosswise about 8 inches apart, as high up as the pole which I have spoken of as determining the height of the walls.

These canes being fastened in this manner, they make mud walls of earth mortar (*mortier de terre*) in which they put a certain amount of Spanish beard. These walls are not more than 4 inches thick. No opening is left except the door, which is but 2 feet wide at most by 4 in height, and some are very much smaller. Finally they cover the framework I have just described with cane mats, placing the smoothest on the inside of the cabin, and they fasten them to each other carefully so that they join well.

After this they make many bundles of grass, of the tallest they can find in the low grounds, which are 4 or 5 feet long. It is laid down in the same manner as the straw with which cottages are covered. They fasten this grass by means of large canes and splints also made of cane. After the cabin has been covered with grass they cover all with cane mats well bound together, and below they make a circle of lianas all the way around the cabin. Then the grass is clipped uniformly, and in this way, however high the wind may be, it can do nothing against the cabin. These coverings last 20 years without repairing.

METATE AND MULLER

Near the line of four postholes which probably constituted a portion of the northwest corner of this Building A or House of the Mysteries were found at 34, Figure 159, a metate, and near it a muller, now in the National Museum (pl. 128, c). The metate immediately adjoined a bed of mingled ashes, charcoal, and earth. It was 15 by 16 inches, by $3\frac{1}{2}$ inches in thickness. The muller was found at $34\frac{1}{2}$, 4 feet south of the metate. The soil under the bed of ashes did not

show evidences of long, heavy firing, and was not burned red. It was impossible to determine whether this metate and fire bed were in the House of the Mysteries or a room adjoining it, or just outside the house wall.

POTTERY BOWLS

Near 40 were found the two pottery bowls shown in Plate 128, *a*, *b*. One is 9 inches and the other $7\frac{1}{2}$ inches in diameter. They are of the usual baked clay mixed with pulverized shell and still retain traces of their original rich, lustrous black color. These vessels were upright, near the wall, and 6 inches distant from each other. They appeared to have been placed on a platform of earth or banquette which raised them about 6 inches above the level of the floor and were surrounded by a layer of mingled clay, ashes, and fine charcoal—probably the remains of the adjoining burned clay-plastered wall. The soil immediately around these two bowls was black and

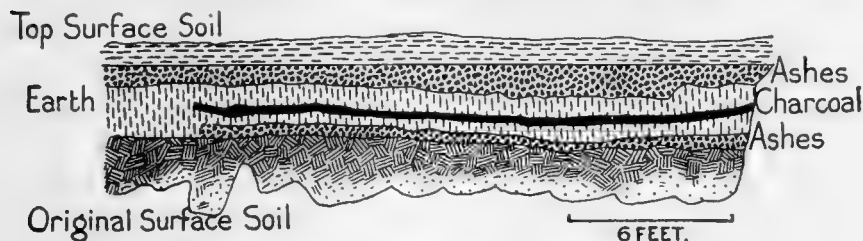


FIG. 163.—Vertical section of fire bed

full of humus. It is doubtful if this arose from the original contents of the vessel.

FIRE BED FOR DOMESTIC USE

At the southwest corner of the mound, at 4, Figure 156, was a large fire bed, 11 by 14 feet, which yielded a large amount of broken pottery and animal bones. It appeared to have been used for domestic cooking during all the various stages of the mound. A vertical section of this fire bed is shown in Figure 163, from which it will be seen that the old inhabitants began cooking at this point on the original surface of the soil. Then when the mound was raised to its first level this cooking bed was covered with a layer of earth. A bed of charcoal was formed upon this earthen layer by the smothering out of a fire thereon with another layer of soil. This brought the bed up to the second level, to which the House of the Mysteries belonged.

When the mound was raised to its last or present level this domestic cooking bed was covered up with earth. It was then probably continued in use as a domestic fire bed; but all traces of the last uses have long since been destroyed by cultivation.

MOUND NO. 2 AT ITS PRESENT LEVEL

Mound No. 2 has been in continuous cultivation for at least 85 years. Some of the old citizens, who have known this mound continuously for from 50 to 65 years, say that the erosion has not been appreciable. They think the mound has not decreased more than 12 or 15 inches in height during the last 65 years.

A reference to Figure 164, which shows the remains belonging to the buildings on mound No. 2 at its final or present stage, will show only a very small amount of evidence of structures on the last or present level. However, enough postholes were found to establish the fact that a building was on it. The + on the south point of the compass represents the center of the present surface of the mound.

While not enough of these postholes were found to throw any definite light on the plan or character of this building, it is extremely probable that the mound continued to have the same character of buildings as at the previous levels.

A bed of about one peck of decayed unworked mussel (*unio*) shells was found at 36, about 18 feet northwest of the center of the mound, and 7 inches below the present surface of the soil. At 50, about 38 feet north of the center and 6 inches below the present surface of the mound, a fire bed of hard-burned clay, 4 by 2½ feet, 10 inches in thickness, was uncovered. This fire bed was underlaid with a 1½-inch stratum of light, powdery charcoal, such as would

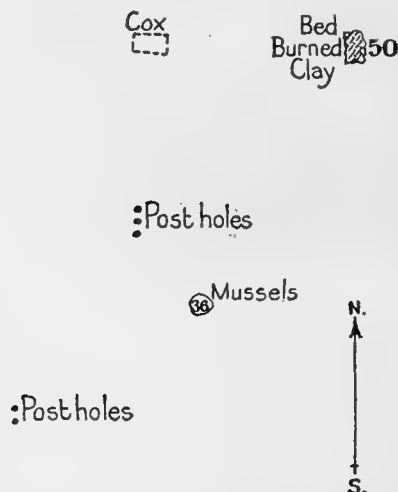


FIG. 164.—Remains belonging to buildings on mound No. 2 at the final or present stage

arise from burning light, chaffy materials, which probably represented a ceremonial fire at the establishment of this fire bed.

The similarity of the cultures of its various stages makes it appear that the mound was in continuous use by the same people. It does not appear to have been left deserted for any considerable period during all this time. This is brought out by the fact that no surface-soil line was found in the interior of this mound, such as would arise from its being deserted and allowed to form a humus soil line. Such lines would have shown clearly in the mound.

Some burials of a later and different people are reported by Hon. P. E. Cox, of Franklin, Tenn., to have been found by him near the present surface of the soil on mound No. 2, at the point marked "Cox" on Figure 164. These will be described later.

OBJECTS FOUND IN MOUND No. 2

Among other things found scattered through the soil of mound No. 2 were the artifacts shown in Plate 129. The barbed arrow point, *b*, was made from the tip of an antler. It has a projecting barb which would hold the point within a wound when the shaft was withdrawn.

The bone awl, *c*, shown in Plate 129, was made from the ulna of a Virginia deer; the whetstone, *d*, is of fine-grained red sandstone; and the bone awl, *e*, is from the tibia of a deer.

Especial attention is called to the unnotched triangular arrow point, *f*, shown in Plate 129.

One or two arrow heads are not enough upon which to build conjectures; but it is proper to note that a few archeologists think it probable that the majority of arrow heads of this type belonged to Iroquoian people.

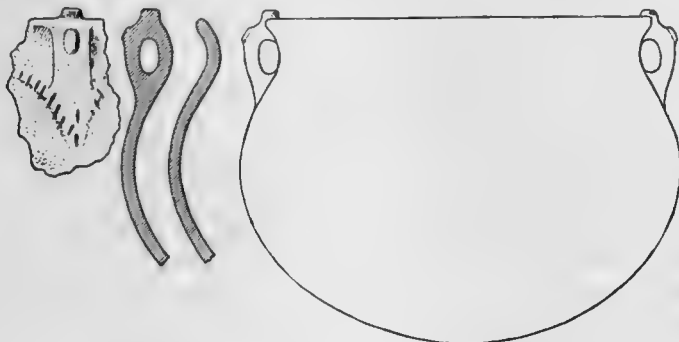


FIG. 165.—Restoration of pot No. 1 from mound No. 2

Only two flint arrowheads were found in mound No. 2. The other one, in Plate 129, *g*, is of the stone drill type. This drill type was used by nearly all the tribes.

The fact that only two flint arrow points were found in this important mound, which was occupied for such a long period of time, shows how careful and frugal were the ancient dwellers thereon. In all that time they let only these two become lost in the spaces excavated.

A disk, $2\frac{1}{4}$ inches in diameter, made from a fragment of pottery, is shown in Plate 129, *h*. It may have been the stone cover of a very small pot. A small pot with a similar stone cover, about 3 inches in diameter, was found on the Gordon site.

RESTORATIONS OF POTTERY VESSELS

Every fragment of pottery found in mound No. 2 was saved. A careful study of these fragments has enabled us to make fairly accurate restorations of a large number of vessels for domestic use, belonging to the people who raised this mound. Typical examples of these are shown in Figures 165 to 189, inclusive. Not all the

sherds belonging to any one of these vessels were identified in this large mass of fragments; but enough were found to allow reasonable accuracy in restorations. These restorations probably illustrate nearly all the sizes, shapes, and colors of the domestic vessels of this flexed-burial people of mound No. 2. A few sherds were found belonging to vessels with shapes entirely different from any reproduced here. Unfortunately there was not a sufficient number of rec-

ognizable fragments of these to allow reasonably accurate restorations.

Figure 165 shows a restoration of domestic vessel No. 1, 10 inches across rim and $8\frac{1}{2}$ inches in depth. Exterior dark yellowish gray, somewhat darker than *g*, Plate 106.

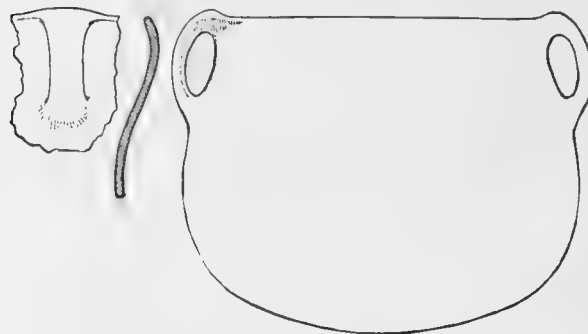


FIG. 166.—Restoration of pot No. 8 from mound No. 2

Interior dark gray, with flecks of powdered shell like *a*, Plate 106.

Figure 166 illustrates a domestic vessel, No. 8, 10 inches across rim and 10 inches in depth. Both exterior and interior are very dark gray with coarse flecks of powdered shell, similar to *a*, Plate 106. Fragments were found of another vessel of similar shape and size. Its exterior was light red, like *f*, Plate 106. Its interior was dark gray, like *a*, Plate 106.

Figure 167, restoration of vessel No. 3, $5\frac{1}{2}$ inches in height. Both exterior and interior very dark cream, much darker than *c*, Plate 106. This vessel was of excellent material, finely polished, and well burned.

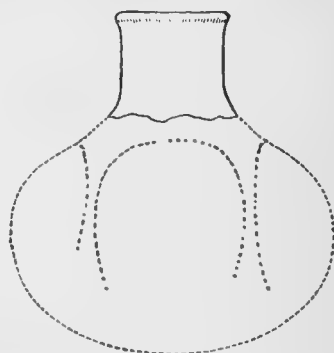


FIG. 167.—Restoration of vessel No. 3 from mound No. 2

Figure 168, restoration of vessel No. 28, 10 inches across rim and $9\frac{1}{2}$ inches in depth. Exterior and interior dark flesh color, intermediate between *d* and *c*, Plate 106. Excellent material, well burned.

Figure 169, restoration of vessel No. 24, 26 inches across rim and 8 inches in depth. Walls one-half inch thick. This vessel shows very distinct impressions of an ancient woven fabric on its exterior. Both its exterior and interior are light red, like *f*, Plate 106. The material is excellent and well burned. The interior had been finely polished.

Figure 170, restoration of vessel No. 25. It was 24 inches across rim and 8 inches in depth. Wall was five-eighths of an inch thick at rim and tapered to three-eighths of an inch in thickness near the bottom. It had been made of a moderately good light red paste (pl. 106, *f*). It had a very thin coating of black spread over its exterior. The interior had been nicely polished, but not so well polished as No. 24. The exterior showed very distinct impressions of a woven fabric, which was of a coarser texture than that on the exterior of vessel No. 24. Woven fabrics were used to hold in shape, during the modeling process and while being handled, such large flat-bottom vessels as are shown in Figures 169, 170, and Plate 130, *b*, while they were in the plastic stage.

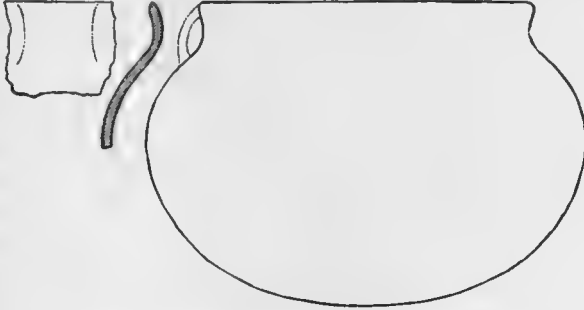


FIG. 168.—Restoration of vessel No. 28 from mound No. 2

Plate 130, *a*, shows the fabric used in the modeling and handling of the vessel in Figure 170.

Plate 130, *b*, restoration of vessel No. 31, 32 inches across rim, 8 inches in depth. Walls were seven-eighths of an inch in thickness near rim and tapered to one-half inch near the bottom. The paste of this vessel was a light red. Its material is excellent and contains



FIG. 169.—Restoration of vessel No. 24 from mound No. 2

a large amount of very finely powdered shell. Its interior is highly polished; its exterior shows impressions of a fine woven fabric.

Fragments of another vessel, similar in size to that shown in Plate 130, *b*, were found. It had a dark gray paste, covered with a thick coating of fine clay, yellowish salmon, somewhat similar to *h*, Plate 106. The interior was finely polished; the exterior showed impressions of a fine woven fabric, similar to that of vessel No. 24 (Fig. 169).

Figure 171, restoration of vessel No. 34, 30 inches across rim, 11 inches in depth. The paste was dark gray. It contained about equal quantities of clay and finely powdered shell. Its exterior was

coated with a thin layer of reddish buff color, somewhat similar to *d*, Plate 106. The interior was not polished. Somewhat similar vessels were found at the Gordon site (see fig. 147). These large, round-bottomed vessels show no trace of woven fabrics on their

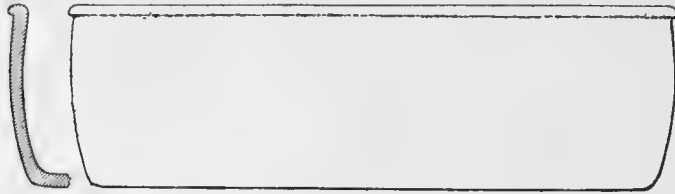


FIG. 170.—Restoration of vessel No. 25 from mound No. 2

exteriors and do not show a care and polish equal to that of the large flat-bottomed vessels.

Figure 172, doubtful restoration of vessel No. 31-A. Not enough fragments of this vessel were found to restore it with certainty. One



FIG. 171.—Restoration of vessel No. 34, mound No. 2

or two somewhat similar vessels found in the southern United States justify the form given. It was about 5 inches in height. The ware was well burned and hard. Exterior and interior Indian red (pl. 106, *e*), mottled with black, probably from use in domestic cooking.



FIG. 172.—Doubtful restoration of vessel No. 31a, mound No. 2

Figure 173, restoration of vessel No. 16. Not certain about handles, as none were found. It was 10 inches across rim and 10 inches in height. Exterior and interior a dark reddish flesh color, intermediate between *d* and *f*, Plate 106.

Figure 174, restoration of vessel No. 17. Not certain as to the handles. None were found. It was 10 inches across rim and 9 inches in depth. Exterior and interior a very dark cream, darker than *c*, Plate 106. Exterior was stained black from domestic fire.

Figure 175, restoration of vessel No. 18. Not certain as to handles. None were found. It was 12 inches across rim and 10 inches

in depth. Exterior light Indian red, with a slight admixture of yellow, somewhat like *e*, Plate 106. Its interior was dark cream.

Figure 176, restoration of large vessel No. 15. Very hard-burned ware. It was 18 inches across rim and 13 inches in depth. Prob-

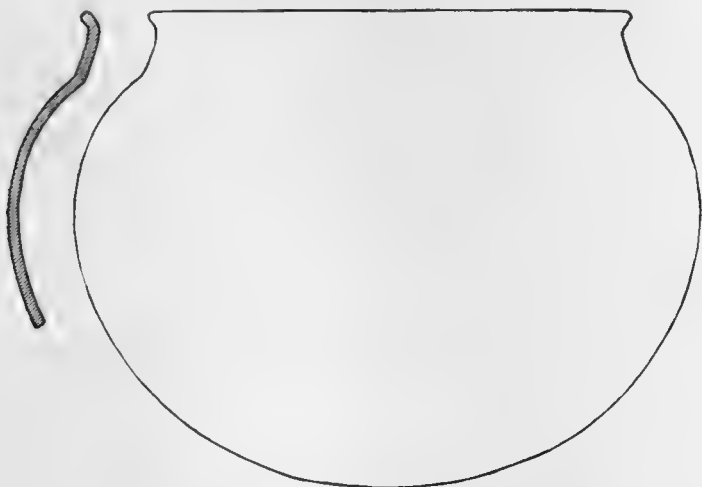


FIG. 173.—Restoration of vessel No. 16, mound No. 2

ably held about 7 gallons. Exterior and interior light red, with large flecks of powdered shell (Pl. 106, *f*). Another vessel was found similar in shape and color to that in Figure 176. It was 12 inches in diameter at the rim.

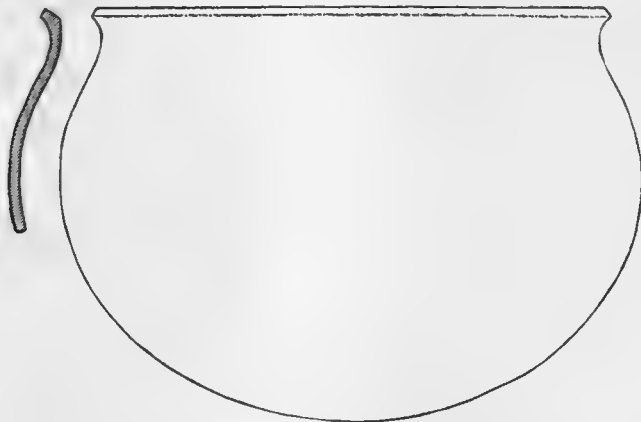


FIG. 174.—Restoration of vessel No. 17, mound No. 2

Figure 177, restoration of vessel No. 13. It was 13 inches across rim and 11 inches in depth. It probably held about 4 gallons. Exterior and interior light red, with large flecks of powdered shell (Pl. 106, *f*).

Figure 178, restoration of vessel No. 11. Very hard-burned ware. Thirteen inches across rim and 11 inches in depth. Exterior smoke-stained light red (pl. 106, *f*). Interior very dark cream. Probably held about 4 gallons.

Figure 179, restoration of hard-burned vessel No. 12. Fourteen inches across rim and 12 inches in depth. It probably held about 5 gal-

lons. Exterior light red with large flecks of powdered shell (pl. 106, *f*). Interior dark cream.

Figure 180, restoration of vessel No. 7. The paste of this vessel was unusual. It was black with a few very minute specks of finely powdered shell. This vessel



FIG. 175.—Restoration of vessel No. 18, mound No. 2

was coated both on exterior and interior with a thin slip of dark cream color. The exterior was badly smoke stained. It was 9

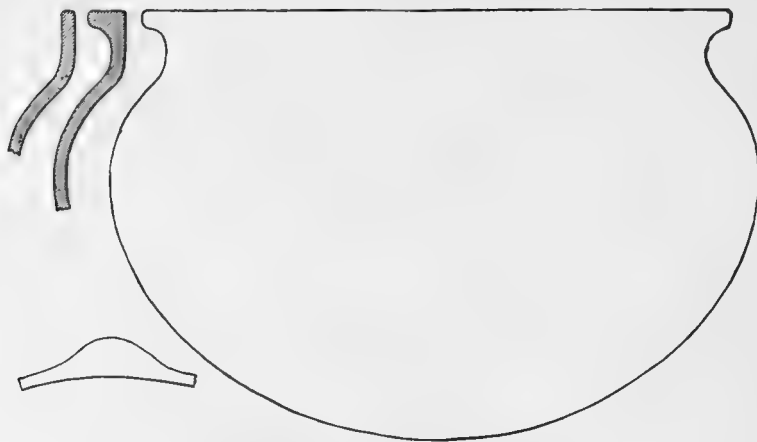


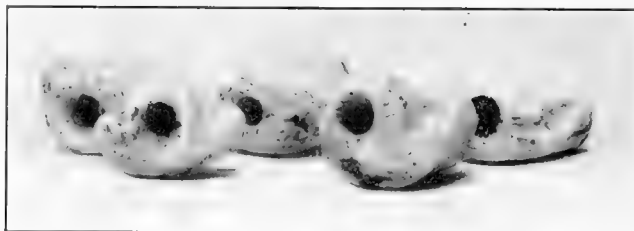
FIG. 176.—Restoration of vessel No. 15, mound No. 2

inches across rim and $8\frac{1}{2}$ inches in depth. It probably held about 6 quarts.

Figure 181, restoration of vessel No. 23. Hard-burned ware, $6\frac{3}{4}$ inches across rim and 8 inches in depth. No handles were found. It probably had none. Exterior and interior very dark cream, darker than Plate 106, *c*. It had large flecks of powdered shell.



a, Shell-shaped vessel from mound No. 2
b, Vessel with unusual rim from mound No. 2
c, Cooking utensil, drawn by John White, on the coast of North Carolina, 1585



a



b

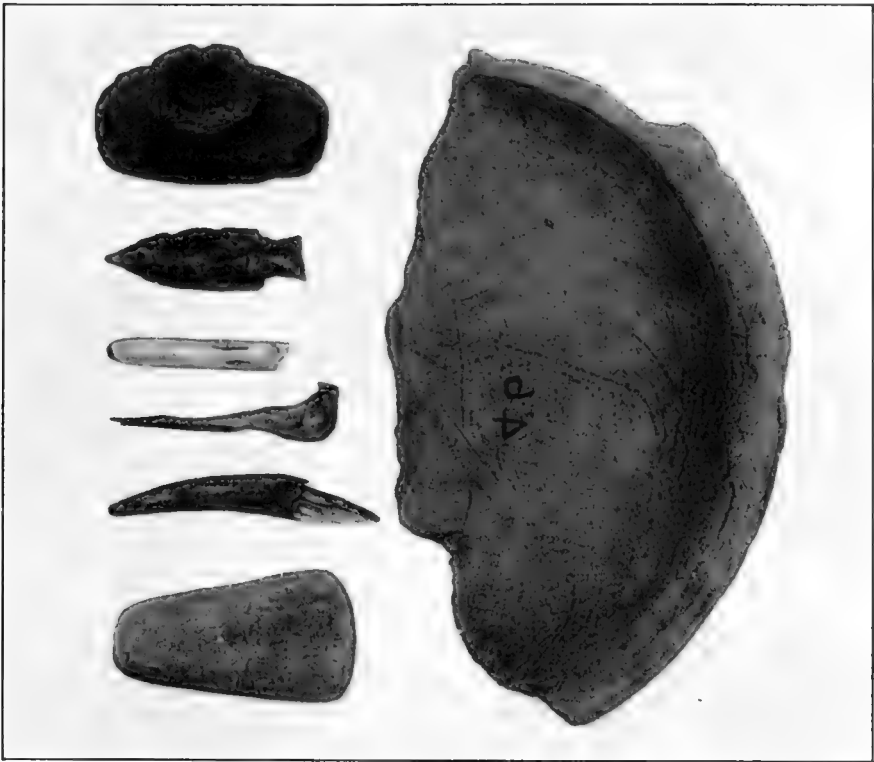


c

a, Beads

b, Pot in grave F

c, Image vase



a



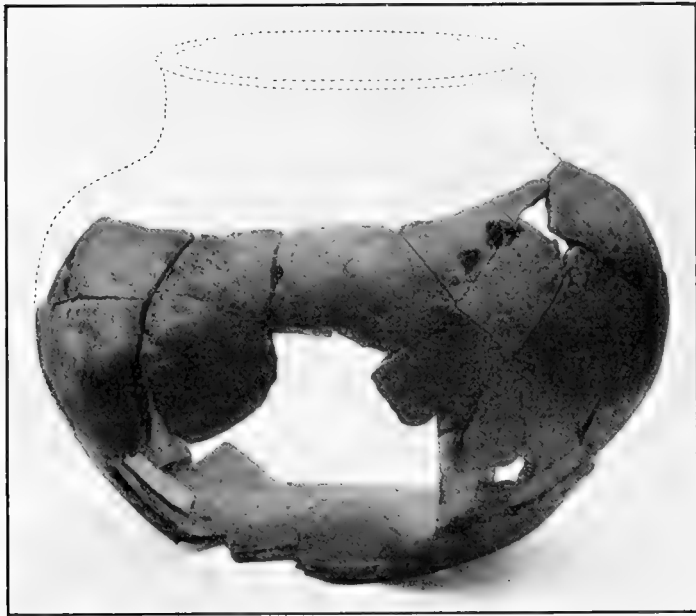
b

a, Objects from mound No. 5

b, Altar from circle No. 6



a



b

a, Raccoon vessel from Noel cemetery
b, Portion of vessel from interior of circle No. 6

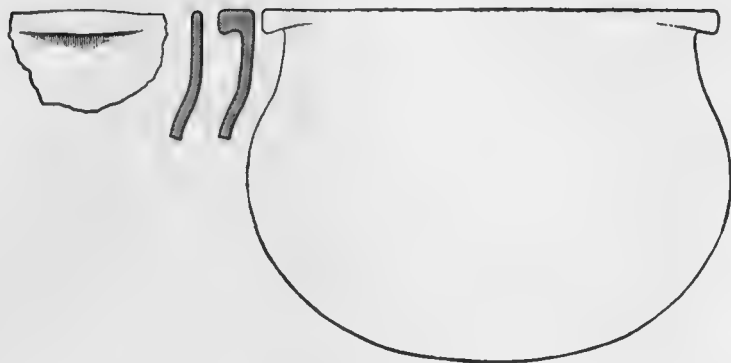


FIG. 177.—Restoration of vessel No. 13, mound No. 2

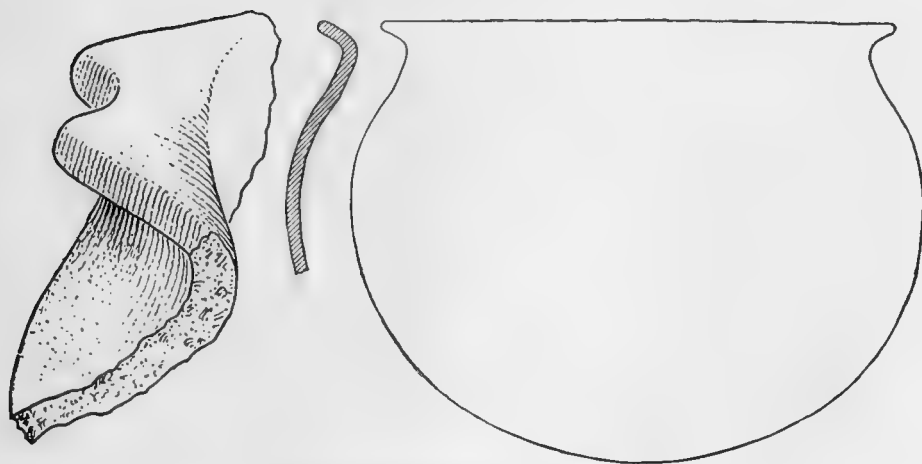


FIG. 178.—Restoration of vessel No. 11, mound No. 2

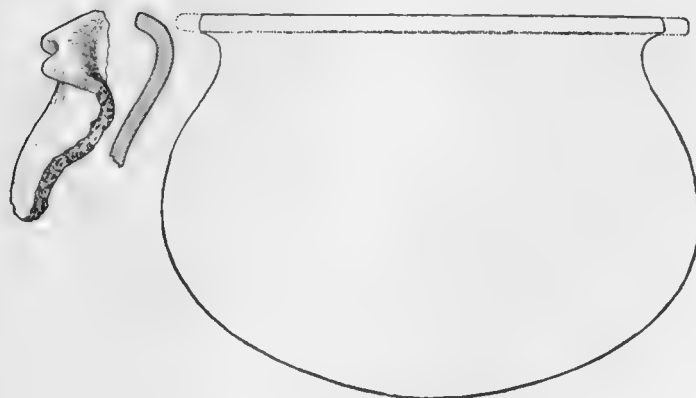


FIG. 179.—Restoration of vessel No. 12, mound No. 2

Figure 182, restoration of vessel No. 22. Eleven inches across rim and 10½ inches in depth. Exterior and interior very dark cream. Interior cream coating had large mottles of black.

Figure 183, restoration of vessel No. 19. Twelve inches across rim and 10 inches in depth. Exterior and interior very dark cream. The paste is black and has no powdered shell except at the rim. The

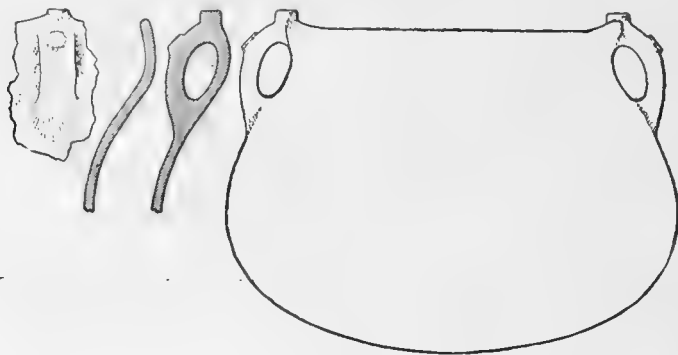


FIG. 180.—Restoration of vessel No. 7, mound No. 2

black paste had been covered with a very thin coating of dark cream-colored clay, both on exterior and interior. This material made a vessel which would not stand rough usage.

Figure 184, restoration of vessel No. 21. Eleven and one-half inches across rim, 10 inches in depth. No handles found. Exterior light red, with flecks of powdered shell (pl. 106, *f*). Interior very dark cream, darker than Plate 106, *c*.

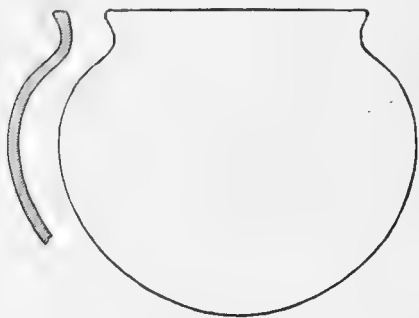


FIG. 181.—Restoration of vessel No. 23, mound No. 2

Figure 185, restoration of vessel No. 20. Twelve inches across rim, 10 inches in depth. Exterior and interior Indian red. A few faint black mottlings.

Figure 186, restoration of vessel No. 35. Nine inches across rim, 8 inches in depth. Exterior and

interior light red, somewhat lighter than Plate 106, *f*, with flecks of powdered shell. The interior had a slight staining of black. Attention is called to its unusual handle.

Figure 187, restoration of vessel No. 30. Eighteen inches across rim, 12 inches in depth. Exterior and interior dark gray, mottled with dull red, with large flecks of powdered shell. It probably held about 6 gallons.

Figure 188, restoration of vessel No. 9. Eight and one-half inches across rim, 8 inches in depth. Both exterior and interior light red, somewhat lighter than Plate 106, *f*, with flecks of powdered shell. Strong, well-burned material.

Figure 189, restoration of vessel No. 10. Ten inches across rim, 9½ inches in depth. Exterior and interior light red, lighter than Plate 106, *f*, with flecks of powdered shell. Strong, well-burned material.

Plate 131, *a*, photograph of a rare shell-shaped vessel, of which a sufficient number of frag-



FIG. 182.—Restoration of vessel No. 22, mound No. 2

ments were found in the great ash bed at 4' in mound No. 2 to restore it with considerable accuracy. It is 8¾ inches in diameter and 4½ inches in height. The ware is dark gray. It is the hardest

burned vessel so far found by the writer in Tennessee and is fully as well burned as modern ordinary pottery.

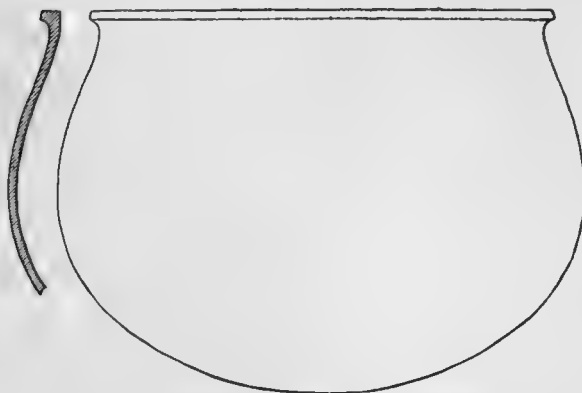


FIG. 183.—Restoration of vessel No. 19, mound No. 2

Plate 131, *b*, photograph of a vessel with a most unusual rim. It is 10½ inches across rim and 10 inches in depth. Its exterior and interior are

light gray. A considerable number of the fragments which had constituted the original vessel were found.

METHOD OF APPLYING FIRE TO VESSELS

The pot, in cooking, was generally set directly on the fire and kept in position by the fuel or other supports placed about its sides. This method is illustrated in Plate 131, *c*, which is from a drawing made by John White at Roanoke in 1585.³⁴ White, who was one of the

³⁴ Harriot's Briefe and true report of the new found land of Virginia, Pl. 15, Frankfort, 1590.

party which founded the celebrated settlement of Sir Water Raleigh at Roanoke Island, made a large number of drawings showing the everyday life of the Indians. The originals are now preserved in the British Museum. Thomas Hariot was also at Roanoke in 1585.

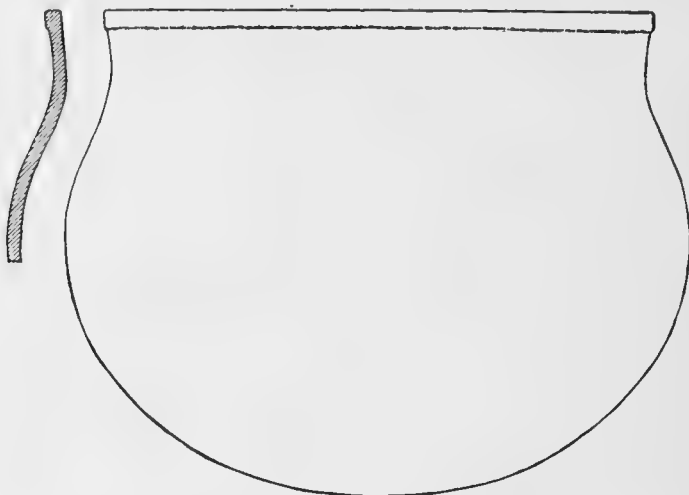


FIG. 184.—Restoration of vessel No. 21, mound No. 2

Hariot was a man of talent and well informed in many departments of learning and was an astronomer of some note. White's drawings and Hariot's report are mines of information in regard to the life of the Indians before they were changed by contact with the whites.

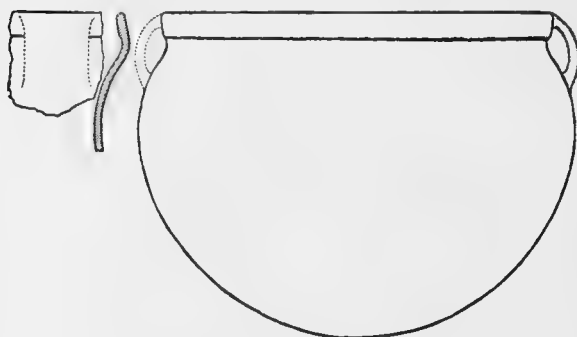


FIG. 185.—Restoration of vessel No. 20, mound No. 2

In many cases the vessels were supported over the fire by a tripod made of poles or by a horizontal pole which rested in the forks of two upright stakes, the vessels being suspended by means of vines, cords, or thongs.

The tripod suspension is shown in Figure 190;³⁵ the horizontal pole method of suspension is shown in Figure 191. This method of suspension was made possible by the strong ears or handles or the outcurving of the upper margin.

³⁵ Reproduced from Schoolcraft, H. R., *Historical and Statistical Information Respecting the Indian Tribes of the United States*, pt. 1, Pl. 22.

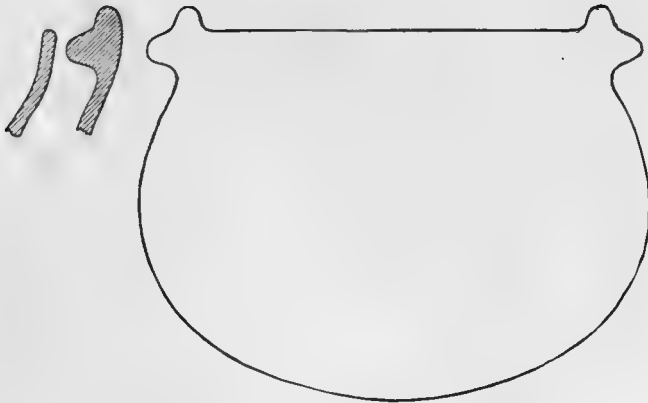


FIG. 186.—Restoration of vessel No. 35, mound No. 2

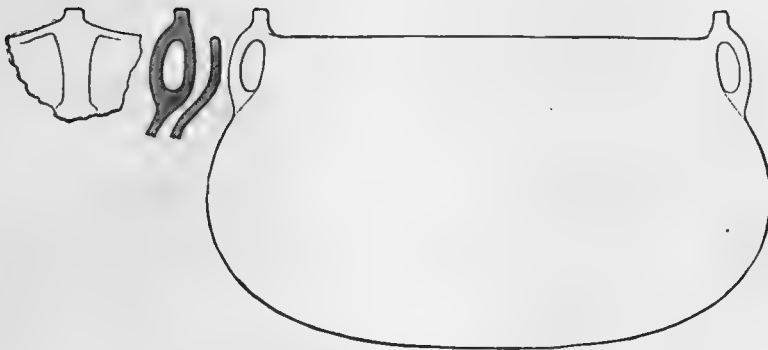


FIG. 187.—Restoration of vessel No. 30, mound No. 2

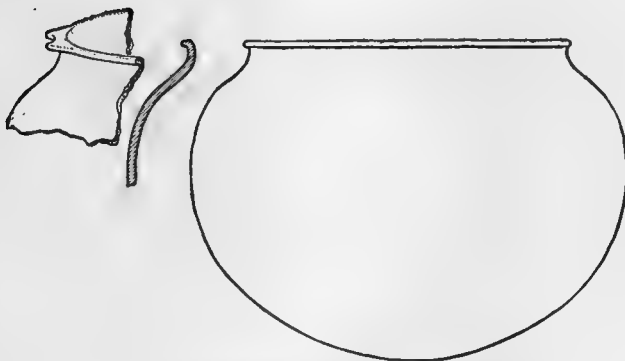


FIG. 188.—Restoration of vessel No. 9, mound No. 2

Boiling by means of heated stones placed within the vessel was also sometimes practiced. This stone boiling was a survival of the preceramic usage, when the boiling was done in baskets or vessels of skins.

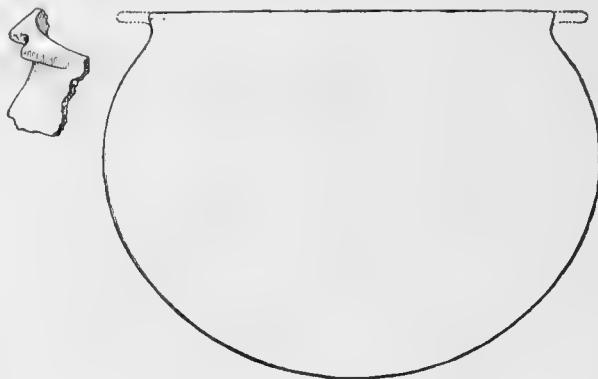


FIG. 189.—Restoration of vessel No. 10, mound No. 2

MOUND NO. 3, A BURIAL MOUND OF THE FLEXED-BURIAL PEOPLE

The low oval mound, No. 3, on the southwest corner of the town square, was a burial mound. It is shown in Plates 124 and 125, *a*.



FIG. 190.—Cooking pot (reproduced from Schoolcraft, vol. 1, pl. xxii)

If this mound had at any time supported a building or had ever been used for any purpose other than burial, all traces had been removed by long erosion and 85 years of continuous cultivation.

At the present time this mound measures about 100 by 110 feet across the top. It slopes so gradually into the adjoining soil that it is impossible to determine its exact limits. It had originally been built on the summit of a very low knoll. The center of the mound at the present time is about 3 feet above what was formerly the high point of the knoll.

It had originally probably contained 10 or 15 stone-slab graves. All but two of these had been destroyed by the relic hunter or the plow. These graves had been made on the original surface of the low knoll and the mound raised around and over them.

The bodies buried in this mound were those of some of the first inhabitants of the site. They are the ones who raised the mounds of the Fewkes group. These first inhabitants have been designated the flexed-burial people because of their unusual method of burial.

The two graves remaining in mound No. 3 were very different from the usual rectangular stone-slab graves of middle Tennessee, in which the bodies were buried on the back, extended full length. The graves in mound No. 3 were either hexagonal or octagonal or nearly round. The

stone-slab coffins were about 32 inches in diameter and about 18 inches in depth. The bodies were closely flexed. They had apparently been buried on the back, with the limbs very closely flexed, as shown in Figure 192. The graves had been more or less disturbed by relic hunters.



FIG. 191.—Horizontal pole method of suspension

GRAVE F

Grave F was the first opened in this mound. If it ever had a top it had already been removed and the bones slightly disturbed. The stone-slab coffin was shaped as shown in Figure 193, with a floor of limestone slabs, and was 32 inches in diameter and 18 inches in depth.

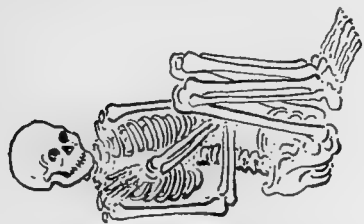


FIG. 192.—Skeleton showing flexed burial (from Moore's "Aboriginal sites on Tennessee River," p. 182)

As near as could be determined, the body had been buried on the back, with limbs closely flexed, as shown in Figure 192. Around the lower end of the humerus the five large shell beads shown in Plate 132, *a*, were found.

The pot shown in Plate 132, *b*, was found upright at the left of the head. The photograph correctly portrays its unsymmetrical shape when found in the grave. It is now impossible to

determine whether this arose from some pressure from above, while it was in the grave, which had no stone-slab top, or whether it got into this shape while being fired. The pot was filled with earth, which was examined by Dr. W. E. Safford, but the leaching of the years had removed all trace of its original contents. It was 6 inches across the rim and 6 inches in depth.

GRAVE G

Somewhat similar in shape and size to Grave F, and immediately adjoining it on the west, was Grave G. It is shown in Figure 194. This grave is 36 inches in diameter and has six sides. It had been entered by relic hunters, who overlooked a little image burial vase which was sitting upright in the open space in the wall at A. This vase is shown in Plate 132, *c*. Joseph Jones, in *Smithsonian Contributions to Knowledge*, volume 22, page 132, shows an image vase, *B*, in his Figure 71, which came from this site and is very much like this one.

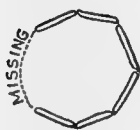


FIG. 193.—Diagram of coffin F

A badly decayed mussel shell, which was probably a spoon, was found where the head had likely rested.

The body had been disturbed, but enough bones remained in place to show that it had probably been buried somewhat in the position shown in Figure 192. Not enough were in place, however, to determine this with certainty.

Under the stone-slab floor of grave G was a small amount of ashes containing a few scattered mussel shells and fragments of domestic pottery. There was no indication of strong action of fire. This evidently represented a temporary domestic cooking place on the surface of the original knoll before the placing of the grave or the erection of the mound around it.

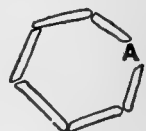


FIG. 194.—Diagram of grave G

MOUND NO. 4

Mound No. 4, on the east side of the town square (pl. 125, *b*), is a low, oblong mound, 200 feet north and south and 180 feet east and west, and about 4 feet in height. A test pit was sunk, 3 by 2 feet, to a depth of 3 feet. The soil appeared similar to the poor soil on all the other natural knolls in the field. No pottery or ashes were found. The mound was apparently a natural knoll which had been given its present shape by the removal of soil, which went into the large mound, No. 1, to the north. No traces of graves could be found in mound No. 4. Those who have plowed this mound for many years state that they have never seen any evidences of graves in it. This mound may possibly have supported some important building. If so, all trace has been destroyed by erosion and long cultivation.

MOUND NO. 1

The principal mound of the Fewkes group is No. 1. It is the large central mound with the tall, slender tree, shown in Plate 125, *b*. Dr. Harry S. Vaughn, ornithologist, at the left, is standing on mound

No. 2; John Trotwood Moore, poet, is in the center on mound No. 3; John H. DeWitt, president of the Tennessee Historical Society, is at the right on mound No. 2.

Mound No. 1 measures 185 feet north and south and 160 feet east and west across the base. It is 25 feet in height. Lack of funds prevented its exploration. A test shaft was sunk about 25 feet from the southern edge. This shaft was 3 by 7 feet and had a depth of 8 feet. At a depth of $5\frac{1}{2}$ feet the original black surface soil was found, which here had a depth of 24 inches. Digging continued to a depth of 10 inches in the clay subsoil beneath this layer of black soil.

Judging from the outline of the surface soil exposed in this test, there had been a natural knoll at this point. It was probably 6 or 8 feet in height. The mound had been raised on the top of it. Several similar knolls are to be found in the surrounding field. The clay subsoil contained no bones or pottery. The 24-inch layer of original black surface soil contained a few animal bones and fragments of pottery. The soil for mound No. 1 had evidently been largely taken from the town square and from the natural knoll which formed mound No. 4. The character of the soil and the amount of broken bones and pottery fragments in this pit in No. 1 are similar to that in mound No. 2.

Everything pointed to mounds Nos. 1 and 2 having been built near the same time and the earth composing them having been taken from the same locality.

There had been a small shaft, about 8 by 8 feet, sunk by relic hunters to a depth of possibly 5 or 6 feet on the summit of this mound. This shaft is now nearly filled with earth. They found no relics as far as could be learned.

Mound No. 1 was probably surmounted by the house of the chief, as the remains of the House of the Mysteries were found on mound No. 2.

ALLEGED ROOM WITHIN MOUND No. 1

About halfway up the north side of mound No. 1 is a hole about 6 inches in diameter which is said to lead to an old animal den. The older inhabitants state that it has been used almost continually by various animals as a den for the last 50 years. It is now, and has been for some years, the home of a family of foxes. Some believe this entrance hole leads to a cellarlike room in the interior of the mound. Several claim to have seen and been in this room. They claim that 40 years ago its entrance was about 4 by 4 feet, extending back a few feet into the mound, where it opened into a room about 10 feet wide, 6 feet high, and 20 feet in length. They claim this room was entirely empty. Reliable people who have known the

mound for 60 years have no recollection of any such room or entrance, and they do not believe it ever existed. There was no exterior evidence of such a room. The probe showed no indications of it.

MOUND NO. 5

Mound No. 5 is a small, low, oval mound, 100 feet north of the Boiling Spring Academy building. It overlooks the beautiful Little Harpeth River, being on the edge of its steep bank, which is 20 feet high at this point. The river and mound are shown in Plate 124. Mound No. 5 measures 32 feet across the base and is $3\frac{1}{2}$ feet in height. The irregular rectangle within the circle, Figure 195, was excavated. No traces of burials or buildings were found. Small amounts of broken animal bones and fragments of pottery were

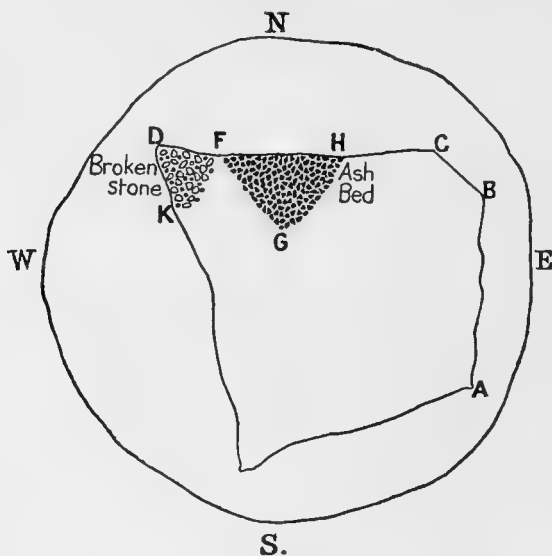


FIG. 195.—Diagram of mound No. 5

scattered through the soil in this mound. The proportion was about the same as that in mound No. 2. In the space *F, G, H*, on the original surface of the soil was a large bed of white ashes from 3 to 6 inches in thickness. The bed ceased along line *H-F*. The ashes contained a considerable amount of animal bones and broken pottery and had every appearance of having been a domestic fire bed. A bone implement and a fragment of antler, shown in Plate 133, *a*, were found in this bed. In the space *K, F, D*, at a depth of 2 feet, was a considerable amount of small, irregular, natural-shape limestone rocks, from the size of a fist to double that size. They showed no order, design, or purpose, and no action of fire. No ashes were near them.

The objects shown in Plate 133, *a*, were found scattered through the soil of mound No. 5.

TRACES OF BUILDINGS

To the north of mound No. 1, in the undisturbed grassy lawn of Boiling Spring Academy and in the adjoining pasture land, were found many more or less faint saucerlike depressions, which previous experience in Tennessee explorations indicated were traces of ancient buildings. The large space on Plate 124 to the east and north of mound No. 1 is crowded with these evidences of structures. There were also indications that the portion of the town west of mounds Nos. 2 and 3 had a large number of buildings.

Limited funds did not admit of a full exploration of these interesting remains. Only nine of the most discernible depressions in this part of the town have been placed on the map. Structures Nos. 6, 7, 10, 11, and 12 appear to have been the most important. No. 6 was explored in order to secure proof as to the character of these saucerlike depressions. A glance at the map and also at the vertical section in upper right corner will bring out the fact that Nos. 6, 10, and 11 were closely related buildings whose functions were probably interwoven. Building No. 7 may possibly belong to the same group. No. 11 was on the edge of the steep river bank, overlooking the Little Harpeth, as can be seen in the vertical section.

No one who truly lays hold upon the soul of the gentle quietudes can stand on the site of mound No. 5, overlooking this gently flowing river, without feeling the calm and the charm which beyond doubt was one of the reasons which led the ancient Indian to choose this site. This deeply reverential spirit of mystical contemplation of nature is well brought out by Mr. Francis La Flesche. Describing the Indian's keen perception of the beautiful and changing colors of the dawn, and his division of these into three well-defined phases, for each of which he has a name which conveys its mystical meaning, Mr. La Flesche relates the following of the Osages:

There are three phases of the dawn that with their mysterious movements and changes in color have ever stirred the imagination of the ancient Non'-hon-zhin-ga, the sages of the Osage people. These beautiful colors that subtly succeed one another as the day approaches, stole into the thoughts of those ancient men who continually sought within all nature for the source of life. Each of these colors they deified as an abiding place of Wa-kon'-da. These dawn colors the ancient Non'-hon-zhin-ga embodied in some of the tribal rites that have for their themes the mysteries of life, and they are spoken of, in some of the rituals, in the following order:

1. Wa-kon'-da U-ga'-ci-hi Kshe: The god that lies as though stricken with a yellowish hue.
2. Wa-kon'-da U-ga'-çon-hon Kshe: The god that lies as though stricken with a pale, whitish hue.
3. Wa-kon'-da U-ga'-zhi-hi Kshe: The god that lies as though stricken with a crimson hue.

CIRCLE NO. 6

The saucerlike depression, No. 6, is 28 feet in diameter. The rim rises 5 inches above the surrounding soil. The center of the present interior was 9 inches lower than the top of the rim. This building is a member of the important group Nos. 6, 10, and 11. On removing

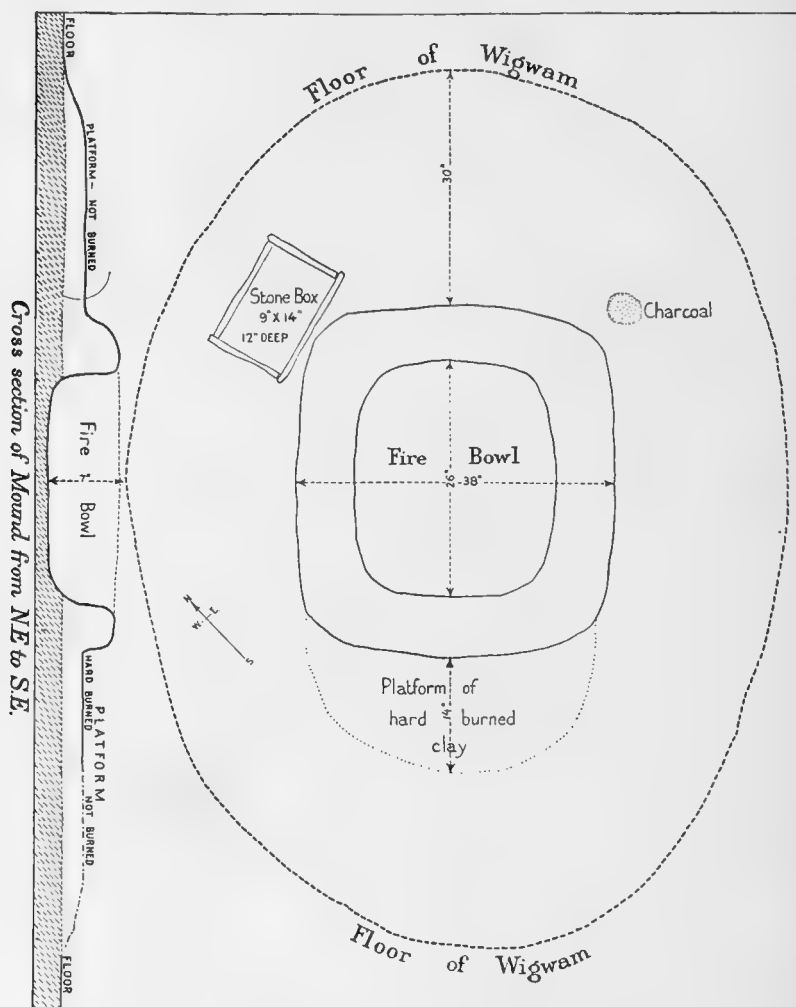


FIG. 196.—Horizontal and vertical section of altar in circle No. 6

the soil from the interior of No. 6, the beautiful fire bowl or altar shown in Plate 133, *b*, was found at its center. This altar was upon a low platform which was from 2 to 3 inches above the surface of the surrounding floor of the building and extended from 24 to 30 inches around the altar on all sides. The altar measures 40 by 38 inches outside and 26 by 25 inches inside and is 7 inches in depth inside. A

vertical and horizontal section of the altar and surrounding platform and a small portion of the adjoining floor is shown in Figure 196. The altar ran nearly northeast and southwest. On the southwestern side the adjoining platform was of very hard-burned red clay for a distance of 14 inches. Its extent is shown by the fine dotted lines. The remainder of the platform was of the same subsoil clay as the surrounding floor. Neither this unbaked portion of the platform



FIG. 197.—Restoration of large pot from altar in circle No. 6

nor the adjoining floor was hard packed or smoothed. Its surface could be detected with very great difficulty.

The altar apparently was formed of a hard-packed puddled-clay core. This core was covered with a layer of very hard-burned reddish-yellow puddled clay. The outer layer was about as hard as a modern soft-burned red clay brick. The altar was half filled with clean white ashes which contained no animal bones or pottery fragments. Lying on top of these ashes was a pile of pottery fragments; others were found on the outer edge of the altar at the north corner, some of which were lying upon and partially covering the adjoining small open stone-slab box but did not appear to have been intended as a top covering for it. These piles of fragments appeared to be the remains of large vessels intentionally broken against the hard rim of the fire bowl, either by the owners at the time the building was deserted or by the enemy.

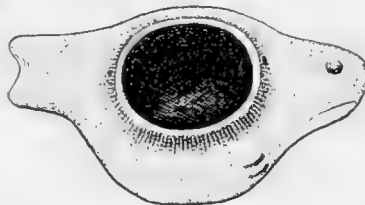


FIG. 198.—Restoration of sunfish bowl from circle No. 6

A study of these fragments showed that if the vessels had been purposely broken some of the sherds had been removed at some later time. Considerable portions of several vessels were found, but no fragments constituting an entire one. The vessels shown in Figures 197, 198, 199, and Plate 134, *b*, are restorations from some of these sherds.

The restoration of the vessel shown in Figure 197 indicates it to have been 16 inches across the rim and 16 inches in depth. Both its exterior and interior were yellowish gray (pl. 106, *g*). Fragments were also found of another vessel similar in size, shape, and color to that shown in Figure 197.

Figure 198 shows a restoration of a fine sunfish bowl about 7 inches in length. The material is hard-burned clay mixed with powdered shell. Both interior and exterior are black.

Plate 134, *a*, shows a black vessel which represents a raccoon. At some places the black is worn away and the very dark gray paste with flecks of powdered shell can be seen. It is in the author's collection, and was found in the Noel stone-slab cemetery about 9 miles northwest of the Fewkes group. A fragment of a similar vessel was



FIG. 199.—Vessel from house circle No. 6

among the sherds in circle No. 6. The Fewkes raccoon vessel was a dark salmon color, somewhat similar to Plate 106, *h*. The bowl of the Fewkes vase was about 7 inches in diameter at its widest point. The bowl of the Noel vase was 4 inches in diameter.

The vessel shown in Figure 199 is $5\frac{1}{2}$ inches across the rim and 6 inches in depth. It is not highly polished, but has a close, firm texture, and is much better burned than was customary with the Indians. It is composed of fine clay, well mixed with powdered shell, and coated both on exterior and interior with a thin layer of buff-colored clay, somewhat darker than Plate 106, *h*. This vessel will compare favorably in hardness and general usefulness with the pottery of the modern whites.

Fragments of another vessel, similar in shape to that shown in Figure 199, were found in circle No. 6. It was 10 inches across rim

and 10 inches in depth. Both its exterior and interior were light gray, with mottlings of black near the rim. The bottom was fire-smoked.

The portion of a very rare vessel of unknown design, shown in Plate 134, *b*, comprises all its fragments left within the building. It is to be regretted that the ancient inhabitants did not leave enough to enable its original form to be determined with reasonable certainty.

The shape of two vessels with somewhat similar flat bottoms and full rounded bodies, shown in Plate V, Thruston's *Antiquities of Tennessee*, gives some faint reason for the shape of the rim in the restoration. Thruston's two vessels were found in a village of related culture, about 10 miles from Fewkes group.

One portion of the bottom and its adjoining body bulge of this vessel in Plate 134, *b*, shows far more effects of prolonged fire action than the other side. It has the appearance of not having been suspended, but of having rested on its bottom, with the fire placed against only one side. This further tends to show it probably had no handles for suspension.

The paste of this is different from that of the usual domestic vessel found in the Fewkes group. It is of a fine buff-colored clay mingled with sand containing a very few finely pulverized fragments of shell. The building in which it was found does not appear to have been a dwelling and was probably used for sacred ceremonial purposes.

These two fine, unusual vessels, shown in Figure 199 and Plate 134, *b*, were probably ceremonial and of a material not allowed in domestic vessels. The paste in that shown in Plate 134, *b*, resembles the buff-colored clay and sand material used in making the altar in this building, the only difference being the admixture of the small amount of finely powdered shell.

The fine altar was not disturbed. The interior of this circle was again filled with earth and left for future investigators.

STONE-SLAB BOX

The stone-slab box near the north corner of the altar was 9 by 14 inches and 12 inches in depth. It was dug in the floor of the wigwam and had no stone cover or bottom. This box was filled with loose black earth very similar to the accumulated black loam which filled the remainder of the interior of the house circle. It possibly was slightly more fluffy and powdery. Through this soil in the stone box were found scattered a very few minute fragments of charcoal. It contained no ashes, broken bones, or pottery fragments, and showed no action of fire. This box was carefully made and may have been a receptacle for some sacred ceremonial object. Its use, however, is problematical.

OTHER OBJECTS FOUND

Scattered through the black loam which filled the interior of house circle No. 6 were found a bear's tooth, some fragments of charred cane stems, a very few broken animal bones, and a few fragments of hard-burned clay containing casts of cane stems and grasses. These latter were probably remains of the ancient plastered walls. The rim of this circle was not examined for traces of these walls.

The two small stone disks (20, 21) shown in Plate 137, *b*, were also found in the accumulated loam. They are, respectively, $1\frac{3}{8}$ inches and $1\frac{1}{2}$ inches in diameter. Both are of limestone which has weathered into what is known locally as phosphate rock. This rock is mined within sight of the Fewkes group.

There was an upright cylindrical fragment of charcoal near the northeast corner or altar, at the point marked "Charcoal" in Figure 196. It was 5 inches in diameter and 4 inches in height. It did not enter the floor but rested upon it.

Scattered through the soil in the interior of house circle No. 6 were other objects shown in Plate 135, *b*. No. 1 is a fragment of a ground gray flint celt. No. 2 is a broken arrowhead of gray flint. There was also a flint flake found in this circle which showed along its edge slight traces of having been used as a saw. No. 3, the cup-shaped half of a natural concretion, probably was used as a paint cup. Still adhering to the interior of the cup is some of the yellow ochre which was used by these people as a paint. This cup was not a mortar in which to grind the paint but only a receptacle for it. These concretions are sometimes found on the surface of the soil around the Fewkes group. Many of them, when broken open, are found to contain a fine quality of yellow ochre. This ochre had good adhesive qualities, as is shown by that which still adheres to the interior of this cup after the lapse of untold centuries. This adhesive quality made it especially adapted to painting the body. The fact that it was found in the interior of the circle also points to its use for that purpose. No. 4 is a whetstone of fine-grained red sandstone from the Carboniferous rocks in the adjoining hills. This was a material largely used for such purposes by all the ancient Indian inhabitants whose successive migrations have drifted through the Cumberland Valley.

Mr. James Mooney states that the Kiowas and other tribes still use yellow ochre as a paint for their bodies, and also for ornamenting objects made of buckskin and other materials. Yellow ochre was a favorite color with the Indians on the Fewkes site. This is shown by the fact that over one-fourth of the hundreds of fragments of domestic pottery on this site had a slip or coating of some of the various shades of yellow ochre, either on the exterior or interior.

The modern Kiowas and some of the other tribes use the mucilaginous juice of the prickly pear as a mordant for yellow ochre when

applied to the body or to buckskin or similar materials. This mucilaginous juice spread over the paint causes it to adhere where otherwise it would quickly fall away when it had become dry. The prickly pear is plentiful on the hills around the Fewkes group.

UNUSUAL DEPRESSION AT 12

Especial attention is called to the depression, No. 12, shown on the map of Fewkes group, Plate 124. It has an unusual shape and probably is not of Indian origin. It will require excavating to determine.

HOMES OF THE FLEXED-BURIAL PEOPLE

It is reasonably certain that traces of ancient habitations of the flexed-burial people will be found in all those areas on the map which are included within the dotted lines. This conclusion was reached from observation and from some faint evidences struck by the men who have tilled the cultivated portion of the site.

CIRCLE No. 17

Local tradition says ashes and other evidences of wigwams have been struck by the plow all along the dotted line area west of mound No. 2. This is partially confirmed by exploration in that area. Excavation brought to light house circle No. 17 in the cultivated land where all traces of house circles had long since been destroyed by the plow. The floor of this building was at a depth of from 6 to 17 inches below the present surface of the soil. A small portion of this floor, on the north and west, had already been destroyed by cultivation. The remainder would soon have been reached by the plow.

On removing the soil a hard-packed, moderately smooth earthen floor was found. It was not made of clay and had not been hardened by fire. What remained was 21 feet in diameter east and west and 18 feet north and south. The building had probably originally been circular. The floor was level and did not follow the slight natural slope of the surface soil. A diagram and vertical section are shown in Figure 200.

To the north of and immediately adjoining what was probably the original center of the floor was a fire bowl. A child had been buried by the side of the upright stone slab, with its head resting within the edge of the fire bowl. Two other graves of children could be seen. The edges of their stone-slab coffins rose an inch above the floor. On the west portion of the floor there was a small, irregular pile of stones. Two postholes, one 5 inches in diameter and 12 inches deep, the other 3 inches in diameter and 6 inches deep, could be seen on the eastern edge of the circle.

The woman who lived in this dwelling was frugal. She was also the neatest housekeeper found in the village. When she abandoned her home she removed all her belongings, including her domestic pottery. She then swept the floor. It was not a very smooth floor,

but she left it clean. No untidy pottery fragments or broken animal bones or ashes were left scattered over the floor. This is clearly seen in the portion of the floor shown in Plate 136, *b*. This photograph shows the floor just as she left it and brings out vividly one very common feature of this ancient family life—the burial of the bodies of young children beneath the floor of the mother's wigwam. The projecting stone-slab sides of one of the coffins are seen to rise from 1 to 2 inches above the floor near the upright pick. The stone-slab top of these graves had presumably been removed by the plow. The sides of the other grave (I) in this circle projected above the floor

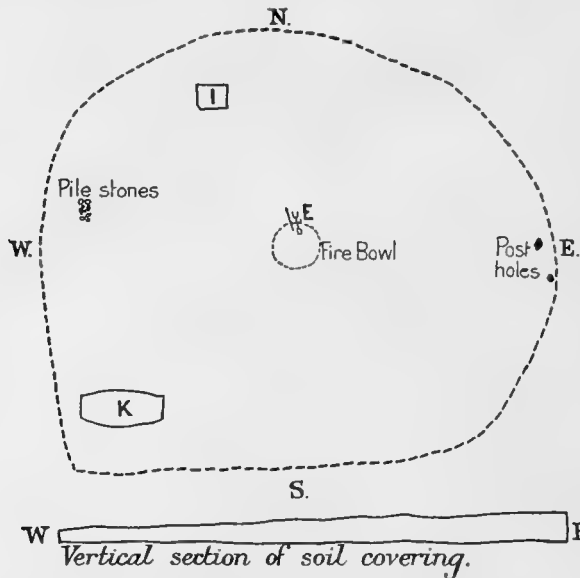


FIG. 200.—Diagram of circle No. 17

in the same way. When the wigwam was inhabited the stone-slab tops of these little graves must have risen above the floor to a height of 3 or 4 inches.

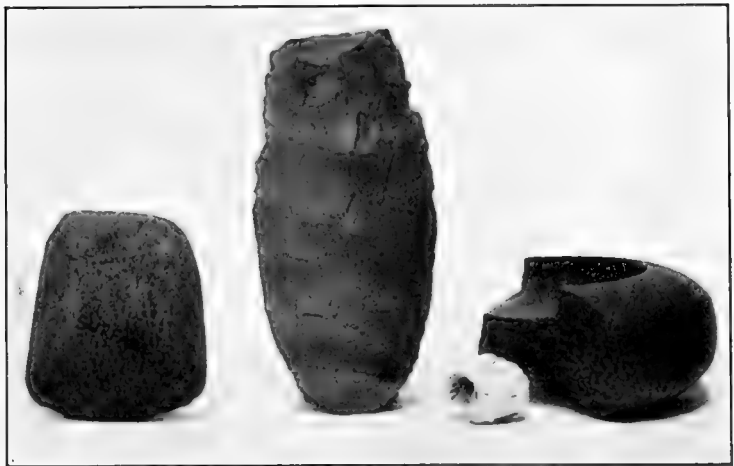
THE CENTRAL FIRE BOWL AND CONNECTING GRAVE

The fire bowl, near the center of the floor, was 22 inches in diameter and 7 inches deep. It was shaped very much like a modern wash-basin. A hole of this shape had been made in the earthen floor and the cavity and a little of the adjoining floor had been covered and smoothly plastered with puddled clay, forming a rounded, plastered bowl almost as smooth in the interior as our modern earthenware washbowls.

One side of the fire bowl had been cut away in order to allow an upright stone slab to be placed as shown in Plate 136, *b*. The body of a child about 12 years of age had then been buried against the eastern side of the slab with the head resting within the edge of the



a



a, Restoration of vessel from fragments *b*, Objects from house circle No. 6



a



b



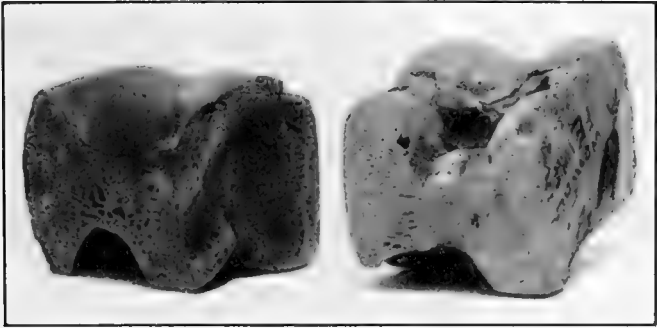
c



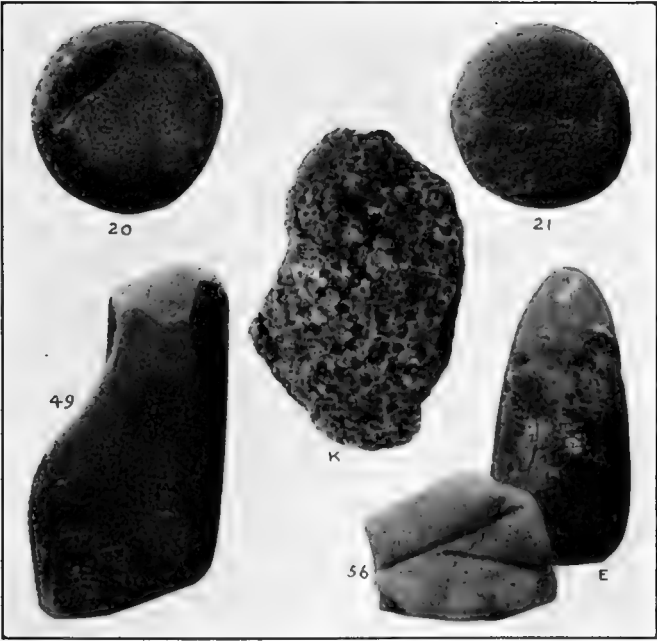
d

a, The two springs in the Fewkes group
b, Portion of floor in circle No. 17

c, Grave D
d, Child in grave E, with head resting in edge of fire bowl



a



b

a, Objects found in grave A b, Rare celt from grave E, and other objects

fire bowl. This burial is called grave E. The body is No. 316094, United States National Museum, Division of Physical Anthropology. The fire bowl, when uncovered, was entirely filled with pure white ashes, free from broken bones or fragments of pottery. They covered the back and the top of the head of the child, as can be seen in Plate 136, *d*, a photograph taken before any of the bones had been disturbed or ashes removed from around the child's head. The top of the skull was only 6 inches beneath the surface of the soil and had been broken by the plow. The ashes can be seen around the top of the skull, which, although within the edge of the fire bowl and surrounded by ashes, showed not the slightest trace of the action of fire.

The body had been buried by the side of the upright slab, which can be seen in Plate 136, *b* and *d*. This slab ran N. 25° E. The head was at the south end of the slab.

The body had been tightly flexed and made into a compact bundle. It must of necessity have been closely tied with some kind of cord in order to hold it in this compact bundle form. From what is known of such burials it is probable the body was wrapped in some kind of skin or cane matting and then the bundle bound with cord. If this skin or matting wrapping had ever existed, all trace of it had disappeared. The nearness to the surface would have hastened its disappearance. The little body, as can be seen in the photograph, was lying on its back and turned very slightly on its left side. Its shoulders had been twisted to the left until the right humerus was parallel to and rested nearly on the center of the breast. The arms had been folded across the breast and the legs bent to the left and then brought closely against the left breast. This was done while in the flesh, for all the bones were in proper place. The position of the bones is shown in Plate 136, *d*.

This fire bowl filled with ashes and the child's unburned head resting within its edge are mysteries. Did the parents bury their child with its head within the cavity of the fire bowl and the fire bowl continue in use? If so, how was it possible to prevent at least some slight burning of the head? There was no evidence of their abandoning this fire bowl and starting another fire elsewhere in the circle. It is more probable this burial was made after the wigwam had been abandoned, or that the wigwam was abandoned at the time the burial was made.

The decayed remnants of what was probably a mussel-shell spoon were under the right ear of the child.

The rare celt (*E*) shown in Plate 137, *b*, was found at the left side of the body, near the hips. Especial attention is called to the unusual beveling on the sides, and to the shape of the cutting edge. So far

as known, this is the only celt of this shape ever found in Tennessee. The material is a fine-grained argillaceous limestone.

GRAVE K

The stone-slab grave, K, in circle No. 17 measured 12 inches at each end and 22 inches in width at the center and was 40 inches in length. The sides curved, as is shown in Figure 200. The edges of some of the upright slabs of this coffin projected from 1 to 2 inches above the surface of the floor of the wigwam. The top had probably been removed by the plow. This grave contained the bones of a child about 2 years old (United States National Museum, Department of Physical Anthropology, No. 316092). Two large, useless fragments of pottery were found with the body in this grave. These had been placed apparently with the same care that would have been used with unbroken, entire vessels. One of these fragments was placed at the right of the head. Both the exterior and interior of this vessel were light salmon tinged with buff, somewhat darker than Plate 106, *h*.

A large fragment of another old, broken pot had been placed at the southwest corner of the grave. A restoration of the domestic vessel to which it once belonged is also shown in Plate 135, *a*. Its exterior and interior were buff colored, somewhat between the shades of *c* and *h*, Plate 106.

Does the placing of only fragments of old, broken vessels in this grave, in place of entire vessels, indicate a belief that a fragment of an old, broken or "dead" vessel would become whole and useful to the dead with whom it was buried?

There was a well-known practice of breaking or puncturing or otherwise "killing" entire vessels and placing all their fragments in the grave. But in grave K evidently no vessel was "killed." Only the fragment of some old, broken vessel was picked up and placed with the dead.

Near the center of grave K was found the fragment of coral (*K*) shown in Plate 137, *b*. These corals can be found in the rotten limestone on the surrounding hills. Its burial with the little body had some significance. Indians often chose for sacred purposes stones that were unusual on account of their beauty or oddity or fancied resemblances. These were sometimes placed in their sacred bundles. Sometimes they were kept in their House of Mysteries. Gravier relates, among other things, in regard to the Natchez temple: "All that I saw somewhat rare was a piece of rock crystal, which I found in a little basket."³⁶

A small whetstone of firm, close-grained, red Carboniferous sandstone was also found in this grave. It is No. 56 in Plate 137, *b*.

³⁶ "Jesuit Relations" lxxv, pp. 138-141.

No. 49, Plate 137, *b*, shows the frugality of the Indian. This is a broken celt made of diorite. The owner had begun to work this fragment into another and smaller implement when it developed other fractures which rendered it worthless.

GRAVE I

Grave I is a very unusual shaped stone-slab grave 16 by 12 inches and 19 inches in depth. Its top edges were level with the floor of the wigwam. This stone-slab box contained the badly decayed bones of a child about 12 years old buried after decay of the flesh (United States National Museum, Division of Physical Anthropology, No. 316093). This box contained no artifacts of any kind.

Near the western side of circle No. 17 a small, irregular pile of unworked stones was found. This pile was 12 by 6 inches and 6 inches in height. Their use is unknown.

The only postholes found in this circle were the two at the eastern side. If there had been others, they had been destroyed by the plow or by time. They probably belonged to the wall of the building.

GRAVE D

Grave D was a stone-slab grave 100 feet southeast of the center of mound No. 3. It is shown in Plate 136, *c*. The coffin was 4 feet long and 16 inches deep, inside measure. The grave ran W. 10° S. Body of adult, buried in the flesh, head at west end of grave. This body had been loosely flexed and was lying on its right side. No ornaments or artifacts of any kind were with it, and the top of the grave had been removed by the plow. Only the light-colored tip of the large slab projected above the present surface of the soil. This was the body of a female. (United States National Museum, Division of Physical Anthropology, No. 316000.)

Was evidently of a different type, dolichocephalic, and may have belonged to a different tribe * * * The skeleton shows extensive pathological (posterior periostitis) involvement of bones. As the skull and jaw were evidently not involved, the nature of the pathological process is uncertain.³⁷

This woman had likely come into the tribe of her own accord by marriage, or she may have been taken captive and held there as a slave, or, more probably, taken as a wife by one of her captors.

BUNDLE BURIAL

On the exterior of grave D, at its western end, was found a pile or bundle of bones belonging to an adult. These had been buried after decay of the flesh. No ornaments or artifacts were found with this

³⁷ See Dr. Hrdlička's report, p. 612.

bundle of bones. Did this person, for whom no one appears to have cared enough to even make a rude coffin, have any connection with this woman of an alien race, by the side of whose coffin his bones had been buried? Was it the body of some captive?

WHO WERE THESE FLEXED-BURIAL PEOPLE?

This concludes the record of the remains of the flexed-burial people who built the mounds and the first village at the Fewkes group. Who were these flexed-burial people?

Their method of burial, the bodies more or less closely flexed, the stone coffins hexagonal or octagonal or tending to circular, is different from that of the other stone-grave peoples who have lived at various times in the surrounding region in middle Tennessee. This method of burial resembles that found by the author in the Sequatchie Valley, in the Kelley group, 8 miles south of Dunlap, on the Sequatchie River, a small tributary of the Tennessee River, in east Tennessee. It also resembles some of the flexed burials found by others in east Tennessee, north Georgia, and north Alabama, principally along the waters of the Tennessee River. However, at some points along the Tennessee River, for example, at Bennett Place in Marion County, Tenn., about 25 miles south of the Kelley group, in a mound excavated by Mr. Clarence B. Moore and described in his "Aboriginal Sites on Tennessee River," pages 338 to 352, both the flexed burials and extended-full-length burials are found in the same mound. Some other comminglings have been found. A study of the small number of these commingled burials does not settle the question as to whether the same people practiced both forms of burial, or whether the unlike forms of burial belonged to two different peoples who had occupied the site at separate times. More information is necessary in order to establish the truth of the matter. It is to be regretted that the Fewkes excavations did not bring to light sufficient skeletal material to greatly aid in this determination. The type of buildings found in mound No. 2 and in circle No. 6, including the altars, and also some of the artifacts found with these flexed-burial people, indicate contact with the surrounding rectangular-stone-slab people, such as those found on the Gordon site and elsewhere in the Cumberland Valley in middle Tennessee.

These first or flexed-burial inhabitants of the Fewkes group, for some unknown reason, deserted the site. There may be some very slight indications in the large amount of broken pottery on the floor of circle 6 that they were forced to leave hurriedly, and such of their belongings as they could not carry with them they destroyed. This important site, which contains the remains of two waves of ancient migrations, should be thoroughly explored.

RECTANGULAR STONE GRAVE PEOPLE

A few graves of a later and different people were found on the adjoining hillside, to the west of the Fewkes group, in a cultivated field west of the garden and dwelling of the present owner, Mr. J. H. Womack. These people were drawn to this site by the fine springs of the old Fewkes group; but they chose the hillside to the west of the springs rather than the site formerly occupied by the flexed-burial people. These two springs are shown in Plate 136, *a*. The one known as Boiling Spring, because its clear waters formerly bubbled up through a layer of sand, causing a boiling appearance, gave its name to Boiling Spring Academy, which is on this ancient flexed-burial site. The other bold and cold, clear spring, in the cool shadows of the stone and white lattice spring house, has dark rocks covered with moss all around its deep basin. The water comes from crevices in these moss-covered stones.

The Cherokees have a beautiful belief in regard to springs. The ancient inhabitants have no doubt sat by this spring flowing out of the mysterious crevices of the rocks and listened to the story of the other world to which such springs as this are the gateways. The version here given is from Mr. James Mooney's "Myths of the Cherokee," Nineteenth Annual Report of the Bureau of American Ethnology, page 240.

There is another world under this, and it is like ours in everything—animals, plants, and people—save that the seasons are different. The streams that come down from the mountains are the trails by which we reach this underworld, and the springs at their heads are the doorways by which we enter it, but to do this one must fast and go to water and have one of the underground people for a guide. We know that the seasons in the underworld are different from ours, because the water in the springs is always warmer in winter and cooler in summer than the outer air.

RECTANGULAR STONE GRAVES

Only three graves belonging to this later band of the rectangular-stone-grave people were found in the aforementioned cultivated field to the west of Mr. Womack's barn and garden. There is evidence to show that a few other similar graves have been destroyed by the plow in this field. Erosion and cultivation have caused these graves to be brought so near the surface that they are now struck by the plow.

GRAVE A

The first of these graves uncovered was grave A. It was 90 feet west of the Womack barn, since burned. It was a rectangular stone-slab grave, 40 inches long, 13 inches wide at east end, and 14 inches at west end. It ran W. 10° S. Top of coffin was 7 inches under present surface of the soil. The bottom of this coffin was lined with fragments of domestic pottery, neatly fitted together into a mosaic

floor. It contained the body of a child about 4 years old. (U. S. National Museum, Division of Physical Anthropology, No. 316088.) The body had been buried in the flesh, extended full length, on its back, arms at side, head at west end of grave.

The two bone dice shown in Plate 137, *a*, were found buried with this child. One was at the child's right ankle, the other at its right knee. These dice were both made from the astragalus bone of a Virginia deer. As will be seen from the illustration, these bones had been carefully worked down, apparently by rubbing, until they had somewhat rectangular faces. It will also be observed that each face is different, and, like our modern dotted-face dice, each face probably had a different counting value.

Astragalus bones of the deer, sheep, bison, and many other animals have been used by savage man as dice from the earliest times, in every quarter of the globe. The early Greeks and Romans so used them. In the Corcoran Art Gallery, in Washington, there is a plaster cast of "The Bone Player," catalogue number 1045, the original of which is in the Louvre. It represents a young maiden playing with four deer astragalus dice, and was unearthed in Rome in 1730. Modern incised dotted dice are descended from the ancient astragalus dice. Astragalus bones were used as dice by many of our Indian tribes. Such dice have been found in many of the stone-slab graves in the region around the Fewkes group, and also in Kentucky, Arkansas, Mississippi, and elsewhere. They have been found in the graves of adults as well as of children. The dice from these graves show that both the young and the old of the middle Tennessee stone-grave people played with them.³⁸

At the right of the child's neck was the miniature pot shown in Plate 137, *a*. This small pot measured only $1\frac{1}{4}$ inches in diameter. It was inverted, which proves it was not intended to contain food or drink.

GRAVE B

The stone-slab grave B was 125 feet north of grave A. It was so near the surface that the top had been removed and the bones broken by the plow. It contained the badly decayed bones of an adult male (U. S. National Museum, Division of Physical Anthropology, No. 316098), lying on its back, extended full length, arms at sides. The skull shows signs of occipital compression. The coffin was 5 feet 6 inches in length and 14 inches in width. The bottom was lined with thin stone slabs. The grave ran W. 5° N., and no ornaments or artifacts of any kind were found in it.

³⁸ Consult Stewart Culin's "Games of the North American Indians," Twenty-fourth Ann. Rept. Bur. Amer. Ethn., 1907.

GRAVE C

Limestone-slab grave C adjoined grave B on the east. Length of coffin 5 feet 10 inches. Width 14 inches at east end and 15 inches at west end. Ran N. 40° W. Bottom lined with thin limestone slabs. Body of adult male. (U. S. National Museum, Division of Physical Anthropology, No. 316103.) It was extended full length, on back, arms at sides. No ornaments or artifacts with the body. Cranium had been broken by the plow. Dr. Hrdlička's report, page 612 of this paper, says this skull was undeformed and shows "a mildly brachycephalic form, which would seem to indicate a connection of these people with those of the mound region of Ohio and parts of Kentucky."

PROBABLE REMAINS OF RECTANGULAR STONE GRAVE PEOPLE

Hon. P. E. Cox, of Franklin, Tenn., did a small amount of digging at Fewkes group about 1895. He made no written record at the time. The information given herewith depends on his recollection after a period of 25 years.

He opened a stone-slab grave about 100 feet southwest of house circle No. 17, in the region marked "Scattered graves." Body was on back, and probably at full length. Head rested in conch-shell cup.

In the region to the north and south of house circle No. 17 he found five or six beds of ashes containing pottery fragments and broken bones. These beds were about 2½ feet in diameter and about 2 feet beneath the surface of the soil. He thinks this line of beds ran north and south, and that they were about 7 feet distant from each other. Some limestone slabs were lying between them. He found nothing under the slabs. It will be recalled that somewhat similar slabs were found on the original surface under mound No. 2.

Between the two large oak trees between mound No. 5 and house remains No. 12 he found what appeared to be a kitchen refuse dump.

On the northwest portion of mound No. 2, marked "Cox" in Figure 164, he found the following burials: The first was a stone-slab coffin, the top of which was sufficiently near the surface to have been removed by the plow. It contained the body of an adult, extended full length, with no relics. Ten inches immediately below the coffin was the body of another adult, not in a stone coffin. He thinks he found about three more skeletons buried immediately beneath the two bodies mentioned. None of these were in coffins. In other words, at this point he thinks he found about five bodies buried, extended full length, each below the other. What he probably found was a stone-slab coffin containing two or three bodies each on top of the other. The author found similar stone-slab graves at Castalian Springs, in Sumner County, Tenn.

Mr. Cox was not positive as to whether these bodies were extended full length or flexed but thought probably they were full length.

With one of the lower bodies he found a nest of four upright pottery bowls, similar to the one shown in Plate 118, *a*. The largest was about 10 inches in diameter and the others in decreasing sizes. Near the pelvis of one of the bodies he found a fine 8-inch flint spearhead. He did not remember what he did with the stone slabs of the coffin or with the bones. Digging at the point indicated by Mr. Cox as the location of the above-described burials in mound No. 2 revealed no trace of the bones or the stone slabs of the coffin.

This burial of several bodies in one coffin on the present surface of mound No. 2 was an intrusive burial made by the later rectangular stone-slab grave band on the mound, which had been built by the earlier flexed-burial people.

These later rectangular stone-slab grave people appear to be closely related to the similar rectangular stone-slab grave people whose remains were found at Gordon town site and elsewhere in the Central Tennessee Basin. As has already been stated, thousands of graves of a similar people have been found scattered through the Cumberland Valley in middle Tennessee.

POTTERY OF GORDON AND FEWKES SITES

A careful study of the many hundreds of pottery fragments unearthed on the Gordon and Fewkes sites brings out some needed information in regard to the size, material, and colors of their domestic pottery.

There were some staple domestic pots whose use was common to all of the tribes. These had much the same shape in all the southern tribes, but the materials differed with the resources of the localities. A comparison of the pottery shown in the preceding pages will bring out an apparent difference in some, but not all, of the vessels. The following table is based on a study of all the recovered fragments and will show some of the differences in materials and colors.

Colors and materials	Per cent	
	Gordon	Fewkes
Various shades of black and gray clay mixed with powdered mussel shells; hard burned	30	25
Various shades of cream and buff-colored slips on a gray paste mixed with powdered mussel shells; hard burned	15	15
Various shades of cream and buff-colored slips on buff-colored clay paste mixed with powdered mussel shells; well burned	40	25
Various shades of red slips on gray paste mixed with powdered mussel shells; hard burned	5	20
Various shades of cream and buff-colored slips on a yellowish light gray paste containing no mussel shells; not well burned	5	10
Other colors than above	5	5
Total	100	100

About half of these domestic pots held from 2 to 3 gallons. Fragments of several pots were found which held from 4 to 7 gallons and some larger vessels which held from 10 to 15 gallons.

Fully two-thirds of the domestic vessels found on these two sites showed black smoke discolorations arising from fires over which they had been either suspended in some manner or supported by stones. These stones thus took the place of the modern pot leg. The fragments showed conclusively that the cooking in fully two-thirds of the round-bottom vessels was done by fires built underneath them. In a very few of the other round-bottom vessels the cooking may have been done by means of heated stones placed within.

The large flat-bottom vessels showed no signs of fire-smoking underneath, and all these were beyond doubt used in stone-boiling; that is, heated stones were placed in their contents. This heated them very rapidly but did not add to the cleanly appearance of the cooked contents.

The writer recalls a stone-boiling, probably derived from the Indians, which continued in Tennessee as late as 1876, in the annual fall hog killings. Water was placed in a large inclined wooden barrel or hogshead, or sometimes in wooden troughs. The stones, having been heated in great blazing piles of commingled wood and stones, were then taken singly, with an iron shovel, and placed in the water, which rapidly came to the boiling point. As the water became cooled, other heated stones were added and the cold ones removed.

ANIMAL FOOD OF GORDON AND FEWKES PEOPLE

Every fragment of bone found on the Gordon and Fewkes sites was preserved. These were examined by Dr. G. S. Miller, Curator of the Division of Mammals, United States National Museum. He found the proportions of animal food represented by these bones to be about as follows:

Animal	Per cent
Virginia deer (no bones of elk, moose, or bison)-----	85
Wild turkey-----	10
Box turtle, snapping turtle, black bear, raccoon, skunk, gray fox, fox squirrel, cottontail rabbit, small birds, fish-----	5
Total-----	100

Only one fresh-water drum fish, two fresh-water suckers, and one other fish were found in the two groups. A very few mussel shells and not over a dozen periwinkle shells were found on both sites, outside of the graves.

The proportion and character of the animal food was practically the same in both the Gordon site and the Fewkes group.

These bones showed that the staple food of both these groups was the Virginia deer. It constituted fully 85 per cent of all their animal food which contained bones. Wild turkeys came next, with about 10 per cent. Not much of other animal food was used. Very rarely indeed a black bear, raccoon, skunk, fox squirrel, or some other of the small animals noted above was used for food. These people did not eat dogs.

There was a reason for not using some animals which probably were plentiful and easy to obtain. Only one or two rabbits were found. This probably arose from the well-known belief of the southern Indian that the rabbit, being timorous, would impart this characteristic to those who ate its flesh. The Cherokees make a rabbit soup and endeavor to pour it in the pathway of the competing team in their ball play, in order to render their competitors less daring.

No bones of the red squirrel were found. The flesh of the red squirrel was supposed by some of the Indians to induce rheumatism, because the squirrel runs or sits with his back in an apparently uncomfortable curve, as though rheumatic.

Deer were plentiful and easy to kill. One deer produced a large amount of food—so why worry with small animals?

The Indian did not kill, as we do, for sport, i. e., for the pleasure of killing. He killed only to supply his necessities and much of this killing was carried out with due and proper rites of propitiation to the spirit of the animal slain.

Apparently land or water birds were rarely eaten.

It is not unexpected that the remains of only four individual fish were found. The Indian was very poorly equipped for catching fish; though in some of the mountain streams of Tennessee the author discovered evidences of several very ingenious, though simple, fish traps which must have caught a considerable number of fish. Here, in the mountains, he found more evidences of the use of fish for food.

A very few mussels (*unio*) were eaten. Periwinkles were found scattered through the soil which filled some of the graves at the Gordon site, where they appear to have been used only as food for the journey to the other world. On some other Indian village sites in middle Tennessee the author has found large numbers of periwinkle shells on the surface, indicating that they were used as everyday food in those villages.

NO TRACES OF BISON

The Indians on both the Gordon and Fewkes sites, as well as on many other sites in middle Tennessee, do not appear to have made use of the wood bison or buffalo. The author has explored several hundred ancient village sites in Tennessee and has never found even

a fragment of bison bone, and only one thing which may possibly, but not probably, indicate the existence of bison in this region. In a reproduction of an ancient Indian engraved stone slab, found near Castalian Springs, in Sumner County, Tenn., and now in the collection of the Tennessee Historical Society, appears a very faint design in the upper right-hand corner which may possibly represent a bison. This design is too weathered and vague to allow of anything more definite than a guess as to the animal represented.

It is a well-known fact that when the early English hunters began coming into middle Tennessee about 1770 they found large numbers of buffaloes. Referring to these 1770 hunters, Haywood, in his "Civil and Political History of Tennessee," page 90, says that on the present site of Nashville "they saw an immense number of buffaloes and wild game, more than they had ever seen at any one place. The lick and all the adjoining lands were crowded with them. Their bellowings resounded from the hills and forests." On page 94 of the same book he states that De Mumbrune saw "immense numbers of buffalo and other game" around Nashville in 1775; and that he met a party of hunters who had descended the Cumberland River. These reported they "had found an incredible number of buffaloes; that one of the party * * * had been killed by a buffalo."

It is known that the wood bison was a comparatively late arrival in the country east of the Mississippi River and south of the Ohio. It may be possible that he had not come into the region at the time the Fewkes and Gordon groups were inhabited. However, the following must be considered: The buffalo was harder to kill than the deer and more dangerous when wounded. The absence of buffalo bones on the Indian village sites may not be absolute proof of the nonexistence of the bison in this region at that time. Mr. Francis La Flesche relates that many of the western tribes who lived largely upon the buffalo did not carry the bones to camp when it was some distance away. They removed what flesh was desired and left the bones. The Tennessee Indians may have done the same. Very few bison bones have been reported as surface finds anywhere in Tennessee. This probably arises from no careful search having been made for them and their close resemblance to the bones of domestic cattle.

The first printed reference to bison is found in the "Narrative of Cabeza de Vaca" (1528-1536), in which it is stated:

Inland are many deer, birds, and beasts other than those I have spoken of. Cattle come as far as here. Three times I have seen them and eaten of their meat. I think they are about the size of those in Spain. They have small horns like the cows of Morocco; the hair is very long and flocky like the merino's. Some are tawny, others black. To my judgment the flesh is finer and fatter than that of this country. Of the skins of those not full grown the Indians make blankets, and of the larger they make shoes and bucklers. They come as far as the seacoast of Florida from a northerly direction, ranging through a tract

of more than four hundred leagues, and throughout the whole region over which they run the people who inhabit near descend and live upon them, distributing a vast many hides into the interior country.³⁹

By "cattle" he undoubtedly means bison. The portion of "Florida" here referred to is most probably somewhere on the present coast of Texas in the neighborhood of Galveston Island. His narrative does not make the exact location clear.

Very few bison appear to have been in the southern part of the United States east of the Mississippi River at the time of De Soto's memorable journey in 1540. In all his long wanderings over what is now Florida, Georgia, North Carolina, Tennessee, Alabama, and Mississippi, his chroniclers make no record of bison having been actually seen or eaten by the Spaniards.

Curiously enough, the only two references to bison made by these chroniclers in this portion of the southern United States locate them in what is now middle Tennessee. These two references are found in the account of De Soto's two attempts to reach the town of Chisca, which he thought might be rich in gold. The author has unearthed a considerable amount of evidence which tends to show that the site of Chisca was very probably the well-known ruin, Old Stone Fort, on Duck River near Manchester, Coffee County, Tenn.

The first mention of bison is in the account of the "two Christians" sent out from Chiaha (probably at the present junction of the Little Tennessee River and the Tennessee River in Loudon County, Tenn.) to make an attempt to reach Chisca.

In three days they went to Chisca, got back, and related that they had been taken through a country so scant of maize and with such high mountains that it was impossible the army should march in that direction; and finding the distance was becoming long, and that they should be back late, upon consultation they agreed to return, coming from a poor little town where there was nothing of value, bringing a cowhide as delicate as a calfskin the people had given them, the hair being like the soft wool on the cross of the merino with the common sheep.⁴⁰

The other mention is in the narrative of the men sent out from the Province of Chicaça in northeastern Mississippi near the Tennessee River. From this point De Soto again sent out men to attempt to reach Chisca at the Old Stone Fort.

They traveled seven days through desert, and returned in great extremity, eating green plums (persimmons) and maize stalks, which they had found in a poor town of seven or eight houses. The Indians stated that thence toward the north, the country, being very cold, was very thinly populated; that cattle were in such plenty, no maize field could be protected from them, and the inhabitants lived upon the meat.⁴¹

³⁹ Narrative of Cabeza de Vaca, edited by F. W. Hodge, in "Spanish Explorers in the Southern United States," New York, 1907, p. 68.

⁴⁰ Narrative of the Expedition of Hernando De Soto, by the Gentleman of Elvas, edited by Theodore H. Lewis in Spanish Explorers in the Southern United States, New York, 1907, p. 182.

⁴¹ Ibid, pp. 212-213.

On page 263, "Myths of the Cherokee" (Nineteenth Annual Report, Bureau of American Ethnology, pt. 1), Mr. James Mooney states:

The buffalo, the largest game animal of America, was hunted in the southern Allegheny region until almost the close of the last century, the particular species being probably that known in the West as the wood or mountain buffalo. The name in use among the principal gulf tribes was practically the same and can not be analyzed, viz, Cherokee, *yûñsá'*; Hichitee, *ya'nasi*; Creek, *yěna'sa*; Choctaw, *yanash*. Although the flesh of the buffalo was eaten, its skin dressed for blankets and bed coverings, its long hair woven into belts, and its horns carved into spoons, it is yet strangely absent from Cherokee folklore. So far as is known it is mentioned in but a single one of the sacred formulas, in which a person under treatment for rheumatism is forbidden to eat the meat, touch the skin, or use a spoon made from the horn of the buffalo, upon the ground of an occult connection between the habitual cramped attitude of a rheumatic and the natural "hump" of that animal.

Mr. Mooney in the volume quoted only gives three or four instances of the mention of bison in the folklore of the Cherokees.

It will be found by a study of the accounts of the early whites in middle Tennessee that they also killed very few of these "immense numbers of buffaloes." While many were sometimes seen to gather around the salt licks, as at the lick at Nashville and at Castalian Springs, it is very probable their numbers were small over the territory as a whole. Granting this to be so, it is astonishing how rapidly they disappeared on the advent of the English settlers. One finds scarcely a mention of them five years after the first permanent English settlers arrived. They vanished almost in a night.

On the other hand, it is also well to remember that the bison for some reason does not enter to any appreciable extent into the myths or rituals of any of the Indian tribes east of the Mississippi River. However, Swan's description of an Alabama Creek town in 1791 (p. 513 of this volume), says the Creeks had a "buffalo family" at that time. The bison figures to a very considerable extent in the religious life of the plains Indians.

The preponderance of the evidence at present indicates it is probable the bison had not yet come into the Cumberland Valley in middle Tennessee at the time the Gordon and Fewkes groups were inhabited.

As was to be expected, no trace of vegetal food was found, save the charred maize and maize meal discovered in the Sacred Image House on mound No. 2, Fewkes group.

REPORT ON SKELETAL MATERIAL FROM FEWKES
GROUP AND GORDON SITE, BY DR. A. HRDLÍČKA,
CURATOR OF PHYSICAL ANTHROPOLOGY, UNITED
STATES NATIONAL MUSEUM

The collection consists of parts of about 25 persons, the majority of whom are children or young.

The whole material indicates rather a weak people, subaverage for Indians.

The remains of the children and fetuses are approximately of the following ages:

Catalogue No.	Limit of variation	Approximate age	Locality
316090	Fetus-----	Fetus-----	Circle No. 23, child's double grave, west rim of house, Gordon.
316091	Fetus to 6 months-----	-----	Do.
316086	1 to 3 years-----	2 years-----	Circle No. 3, double grave, Gordon.
316092	-----do-----	-----do-----	Circle No. 17, grave K, Fewkes.
316088	3 to 6 years-----	4 years-----	Grave A, Fewkes.
316089	-----do-----	5 years-----	Circle No. 23, grave 1, east side of house, Gordon.
316085	6 to 10 years-----	6 years-----	Circle No. 20, Gordon.
316087	-----do-----	7 years-----	Circle No. 3, double grave, Gordon.
316095	-----do-----	9 years-----	McGavock site, mouth of Stones River.
316093	10 to 14 years-----	12 years-----	Circle No. 17, grave I, wigwam floor.
316094	-----do-----	-----do-----	Circle No. 17, grave E, Fewkes.

Of the adults there are only five skulls in a sufficient state of preservation to permit of any comment. Two of these (316099, grave P, Gordon site, and 316103, grave C, Fewkes group), both males, are undeformed and show a mildly brachycephalic form, which would seem to indicate a connection of these people with those of the mound region of Ohio and parts of Kentucky. A female skull (316100, grave D, Fewkes group) was evidently of a different type, dolichocephalic, and may have belonged to a different tribe. The two remaining crania show moderate occipital flattening, and but little can be said about their original type.

Of the skeletons only that of 316099, grave P, Gordon site, approaches in strength, but without equaling, an average male Indian.

The skeleton 316100, grave D, Fewkes group, female, shows extensive pathological (posterior periostitis) involvement of bones. As the skull and jaws were evidently not involved, the nature of the pathological process is uncertain.

The rest of the skeletal material is normal with the exception of the tibiae of 316101, adult, grave on west side of circle No. 3, Gordon site, which shows patches of moderate periostitis.

A. HRDLÍČKA.

SKELETAL MATERIAL FROM THE GORDON SITE IN THE UNITED STATES NATIONAL MUSEUM

- 316099. Adult male; grave P.
- 316085. Child; circle No. 20.
- 316086. Child; double grave; circle No. 3.
- 316087. Child; double grave; circle No. 3.
- 316089. Child; grave 1 on east side of circle No. 23.
- 316090. Fetus; child's double grave on western rim of circle No. 23.
- 316091. Fetus to six months; child's double grave on western rim of circle No. 23.
- 316099. Adult male; grave P.
- 316101. Adult male; grave in west side of circle No. 3.
- 316102. Adult male, not in a stone coffin, at 7; circle No. 84.

SKELETAL MATERIAL FROM FEWKES GROUP IN THE UNITED STATES NATIONAL MUSEUM

- 316088. Small child; grave A.
- 316092. Part of lower jaw and femur only; grave K.
- 316093. Child; grave I in circle No. 17.
- 316094. Child; grave E.
- 316098. Adult male; occipital compression; grave B.
- 316100. Adult female; grave D.
- 316104. Adult male; grave F.

CONCLUSION

The skeletal material from the Gordon and Fewkes sites brought to light a most puzzling set of apparent facts, and strongly emphasizes the great necessity for further explorations in this region. A considerable amount of the adult skeletal material found was so deformed by the occipital flattening practiced by these ancient people as to be of little value in certain lines of research. Only one undeformed adult skull was obtained from the Gordon site and only one from the Fewkes site.

The ornaments, implements, and other artifacts, and the modes of burial—the entire culture of the Fewkes flexed-burial people—appear to have been somewhat different from that of the Gordon extended-full-length people, and it also was slightly different from the other extended-full-length sites in middle Tennessee.

The culture of the Gordon site people appears to have been closely related to that of many, but not all, of the surrounding ancient Indian towns in middle Tennessee.

The one undeformed skull from the Fewkes group and the one from the Gordon group, and the other small amount of usable skeletal material from these two sites, appear to tend to show that the later

Fewkes extended-full-length rectangular-stone-grave people were probably related to the Gordon extended-full-length rectangular-stone-grave people. This skeletal material also tends to show that the Gordon site people do not closely resemble physically those who lived in the near-by towns whose culture appears to be related to that of the Gordon town.

This small amount of skeletal material from the Fewkes and Gordon sites appears to resemble that found by Mr. Clarence B. Moore at Indian Knoll, on Green River, in Ohio County, southern Kentucky. It also resembles that found by the Peabody Museum expeditions at Madisonville, in the outskirts of Cincinnati, Ohio. Yet the artifacts found at Indian Knoll are entirely different from those of either the Gordon or Fewkes site. Indeed it would be difficult to find sites whose entire cultures are as different as that of the Gordon town and Indian Knoll. The Indian Knoll people buried flexed. The Gordon and the later rectangular-stone-grave Fewkes group people buried extended full length. Though Indian Knoll is in a stone-slab region, they did not use stone-slab coffins, while those of the Gordon and Fewkes groups did. The artifacts found at Gordon and Fewkes are entirely different from those at Indian Knoll.

There appears to be some very slight trace of resemblance between the culture of Madisonville and that of the Gordon site. These two sites are probably related.

Beyond all question, the rich valley of the Cumberland has been occupied by wave after wave of succeeding Indian tribes. Many of these were unrelated. The Gordon kindred people left more remains in the valley than any other. Further needed explorations will probably show many more.

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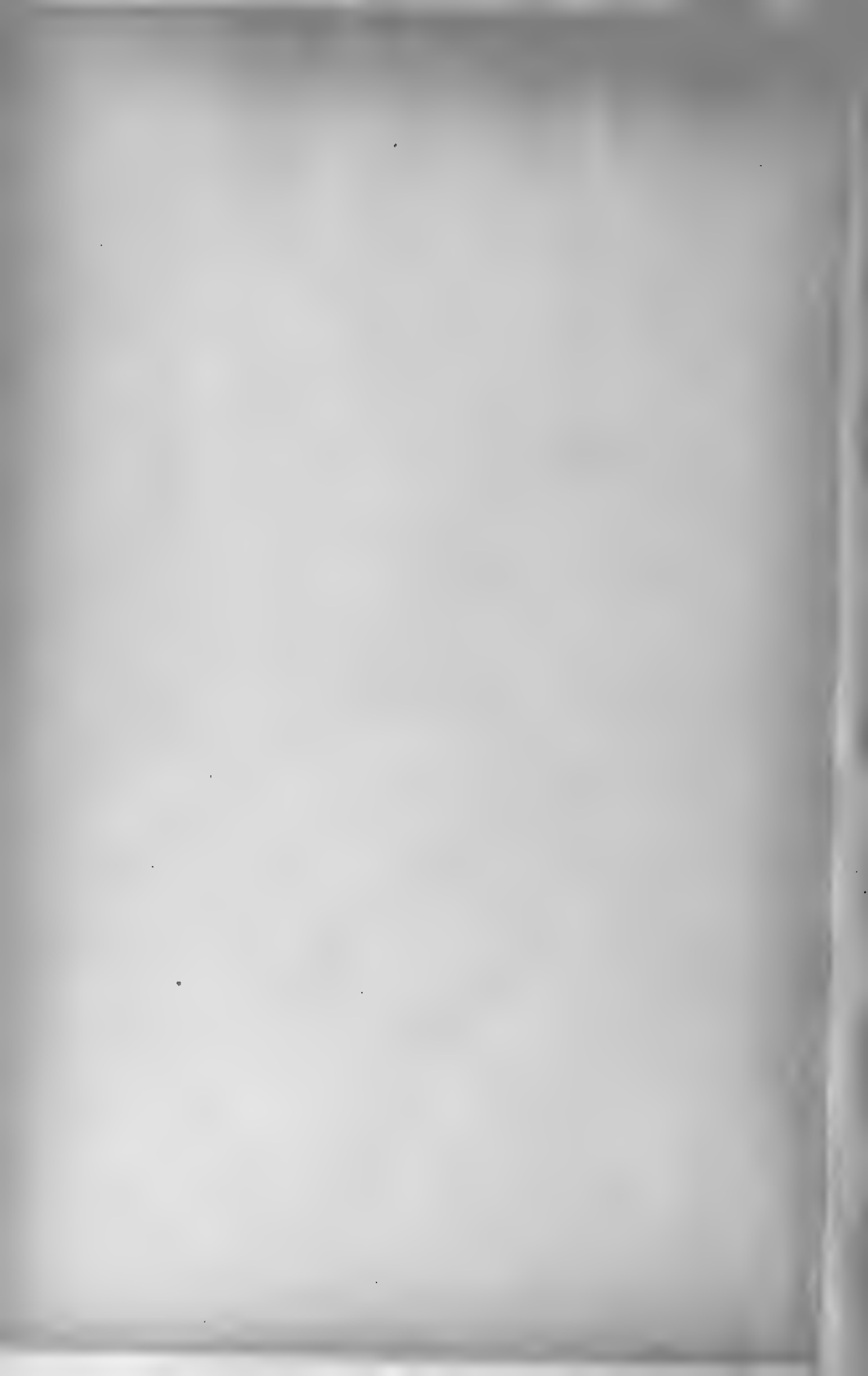
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